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Average Speed on Crown Colony Railways

MR. G. V. O. BULKELEY'S article on page 883 lays emphasis on the increasing importance of the overall speed of transit on railways, not only of passengers but of goods, and on narrow gauge railways in particular, as competitive road transport approximates to the average speeds possible on such lines even in favourable circumstances. Indeed, the importance of this matter as affecting goods is greater even than as affecting passengers in view of the door-to-door services that can often be provided nowadays by road vehicles. This was not a consideration when most of the railways in the Crown Colonies and other undeveloped countries were built, and the improvement of permanent way to permit of higher speeds has now become not merely justifiable but urgent. In many countries, of course, it is already well in hand, but in others it does not appear to be fully realised yet that the prime cost involved is one which, if the railway is to survive road competition, must inevitably be faced. With care and with co-operation between the various engineering departments, the cost of improvements can be kept down. For example, simple methods of curve adjustment are available, necessitating the minimum of slewing. Attention to locomotive balancing is also important, and recent experience deserves careful examination for it shows that the civil engineer's bugbear of hammer blow can be minimised with a simplicity that formerly would not have been credited.

* * * *

Norwegian State Railways General Manager

The appointment of Mr. Waldemar Hoff as General Manager of the Norwegian State Railways (recorded on page 900) is an event of general public interest in Norway. For Mr. Hoff's name is connected with the advocacy in the press, at a time when public demand for speedier and more frequent communications was widespread, of the introduction into Norway of high-speed railcar services on the lines of the Danish Lyntog schedules. Mr. Hoff's proposals of this nature for the routes from Oslo to Trondheim, Bergen, and Stavanger were summarised in our *Diesel Railway Traction Supplement* of October 1, 1937. As Traffic Manager of the Drammen District for five years, and an experienced engineer, Mr. Hoff has already shown his ability to put into practice the principles of smartness and efficiency in working which he has publicly sponsored, and which at Drammen he has seen realised in all classes of train service. As will be gathered from the notice of Mr. Hoff's appointment elsewhere in this issue, he enjoys the confidence and admiration of the railway staff, and his statement in an interview that the main line of his policy will be "the positive line," may foreshadow important developments in Norwegian railway transport.

* * * *

The Week's Traffics

Decreases of £62,500 in general merchandise receipts and of £13,500 in coal class earnings more than offset the net increase of £8,000 in passenger train traffics of the four main line companies for the past week. In the corresponding week of 1937 the railways had the benefit in passenger receipts of visitors for the Coronation and the first two days of the London bus strike and also had satisfactory increases in earnings from merchandise. Aggregate takings of the four companies for the 17 weeks of the present year amount to £49,749,000, a net increase of £281,000 or 0·57 per cent.

	17th Week									Year to date	
	Pass., &c.		Goods, &c.		Coal, &c.		Total			Inc. or Dec.	
	£		£		£		£			£	%
L.M.S.R. ..	+ 6,000	–	35,000	–	7,000	–	36,000	–		29 000	– 0·14
L.N.E.R. ..	– 8,000	–	5,000	–	6,000	–	19,000	+		88,000	+ 0·59
G.W.R. ..	+ 3,000	–	20,000	–	1,000	–	18,000	+		86,000	+ 1·04
S.R.	+ 7,000	–	2,500	+	500	+	5,000	+		136,000	+ 2·20

London Transport receipts for the past week are £7,500 up, and the total for the 44 weeks is £24,740,500, an increase of £91,000. Mersey Railway traffics continue to improve, making the advance for the year to date £3,084. Liverpool Overhead earnings to date are up £2,334.

* * * *

Pullman Incorporated

There was a wide improvement in gross revenue from sleeping car operations during the first half of 1937, followed by a steadily narrowing rate of gain during the third quarter. For the whole year 1937, however, the gross receipts of $57,666,648 from cars showed an improvement of $5,020,655 over 1936. In the expenses of $53,447,531 there was an advance of $4,255,759, which was accentuated by the granting as from August 1, 1937, of a 5c.-an-hour advance in wages of all classified employee groups in this division, to conform to similar action taken by the railways on the same date with respect to their non-operating employee groups. Net earnings from cars after provision for Federal taxes amounted to $4,219,117 in 1937 against $3,454,221 in 1936. The number of passengers using the cars rose from 17,197,736

to 17,744,568, and the average journey per passenger from 486 miles to 517 miles. Innovations developed during the year included a folding type of berth-bed providing improved dressing space for single-berth passengers. A number of light-weight " roomette " sleepers were placed in operation during the year, and there has been continued development in fast long-distance sleeping car services. Air-conditioned Pullman cars to the number of 4,761 were in operation at the end of 1937. The manufacturing business showed a profit of $9,059,115 in 1937, or more than thrice what was earned in 1936.

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Overseas Railway Traffics

Except in the territory served by the Argentine North Eastern and Entre Rios Railways where conditions are more favourable, there has been no break in the depressing series of decreases recorded by British-owned Argentine railways during the past fortnight. In each case, however, the aggregate traffics in sterling for the 44 weeks of the current year appear to be still ahead of those for the corresponding period two years ago. The Argentine North Eastern has improved its position in comparison with last year to the extent of £13,817, and the corresponding advance on the Entre Rios is £61,558, or 719,600 pesos. On the Central Uruguay Railway the traffics to date amount to £777,833, showing an increase of £18,487, although in currency there is a decrease of $241,842.

	No. of Week	Weekly Traffics	Inc. or Decrease	Aggregate Traffic	Inc. or Decrease
		£	£	£	£
Buenos Ayres & Pacific ..	44th	92,308	– 28,288	3,891,196	– 261,390
Buenos Ayres Great Southern ..	44th	127,916	– 10,235	6,616,128	– 28,555
Buenos Ayres Western	44th	51,613	– 16,501	2,003,350	– 203,924
Central Argentine	44th	103,703	– 46,390	5,328,654	–1,445,815
Canadian Pacific	18th	631,400	– 134,000	8,115,800	– 591,600
Bombay, Baroda & Central India	3rd	287,775	– 3,825	566,250	– 4,650

Gross earnings of the Canadian Pacific Railway for the first quarter of 1938 were £6,033,200, a decrease of £300,200 on the corresponding quarter of 1937, and in the net earnings of £249,600 there is a fall of £478,800.

* * * *

Prosperity and British Railways

Some idea of the present commercial position of British railways was given in a recent lecture at Nottingham by Mr. C. E. R. Sherrington entitled " Railway Problems Awaiting Solution." Even in the comparatively prosperous year of 1937 the railways earned a return of less than 3½ per cent. on capital, whereas the standard revenue, if earned, would be equivalent to almost 4¾ per cent. Railways had not attained the same level of prosperity as most of the country's other industries in recent years. Gross and net receipts were still well below the 1929 level—although no other industry could point to such a long period of rigidly enforced economy—whereas in many other industries the results of that year had been exceeded; in fact general business activity was 19 per cent. above 1928 and company profits about 15 per cent. up on that year. To attempt improvement by raising the level of fares and rates to any considerable extent would probably result in a large turnover of traffic to competitive facilities, or even the reduction of total demand.

* * * *

A Private Train on the L.M.S.R.

Under an old right dating from the promotion and construction of the Highland Railway, the Duke of Sutherland is entitled, upon giving due notice, to run his own private train between Inverness and Wick subject to the railway company's rules and regulations. Considerable public interest was aroused by the exercise of this privilege on April 23 in connection with the Prime Minister's journey from Dunrobin Castle to London, when the section from Dunrobin (the Duke's private station between Brora and Golspie) was made behind the Duke's private engine, an 0-4-4 tank built by the Atlas Engineering Company of Glasgow about 1895. This engine is stated to have been in steam only about three times during the past 15 years, but it was duly passed by the L.M.S.R. and was manned by that company's crew. Although the Duke has his own private saloon coach, it was not used on this occasion and the vehicle employed was the Northern Division official saloon. The special train was allowed 3½ hours for the 86 miles from Dunrobin to Inverness, with three booked stops for water; a speed restriction of 30 m.p.h. was imposed. On the return trip the engine ran light and Lady Mary Stewart, the 17-year-old daughter of the Marquess of Londonderry, travelled on the footplate.

* * * *

The Manchester Centenary

This year Manchester reaches her century as a corporate borough, having been granted a charter by Queen Victoria on November 1, 1838. The centenary celebrations began on Monday last with a civic luncheon to Sir Kingsley Wood, the Minister of Health; the King and Queen are to visit the city on May 18; a pageant has been planned for the period from June 27 to July 2; and a military tattoo will be held from July 4 to 9. The celebrations will thus cover more than two months, and, combined with the exhibition opened on Monday by Sir Kingsley Wood showing the development of the civic services during the past 100 years, should provide every reasonable opportunity for the history and activities of the " industrial metropolis of the north " to become even more widely known. A point which deserves to be emphasised is that 100 years ago, also, Manchester was linked to the Metropolis by rail, for it is impossible to calculate the extent of the enormous contribution of rail transport towards the present commercial importance of Manchester. Probably that city was the first in the world to recognise the value of the railway, and the Liverpool & Manchester became the inspiration of many of the early successful railway undertakings throughout the country.

* * * *

The Barbados Railway

In March of last year Mr. E. M. Bland, C.M.G., who had been appointed " to report on the question whether and if so at what cost the Barbados Railway should be put into working order and if restored on what scale the service should be maintained in the future," submitted his report to the Government. He stated that everything pointed to the abandonment of the railway as the wisest course to adopt; and that the continuance of the service would mean heavy expenditure with no opportunity of obtaining sufficient revenue to balance expenditure. He therefore recommended that early steps be taken to withdraw the service and that the railway be closed as soon as possible, to which view the Legislature agreed. Tenders were invited for the purchase of the property, with the exception of the land and certain buildings, and an offer of £2,395 was accepted by the Government. It is now announced in the Barbados *Official Gazette* that the money has been paid and the property is in course of being handed over to the purchaser. Most of the railway buildings will be disposed of shortly by auction, and the land will be retained by Government. The services of the railway employees were dispensed with on September 30 and, in accordance with the provisions of the Railway Employees (Pension) Act, 1937, pensions or gratuities were given to those persons who were in the employ of the Railway Board at the date of the abolition of the railway service.

Progress

It is remarkable to reflect on the change which has come over the Anglo-Scottish train services in a relatively brief period of time, and of which the inaugural journey of the accelerated Royal Scot, described on page 911 of this issue, provides a forcible reminder. Twenty-five years ago it required the use of three locomotives, one from Euston to Crewe, a second from Crewe to Carlisle, and a third from Carlisle to Glasgow, not infrequently with pilot assistance, and generally with the help of a banking engine to Beattock summit, to complete the journey of 401½ miles from London to Glasgow in 8¼ hr., inclusive of four intermediate stops, and with a load which probably averaged not more than 350 tons. Today one locomotive, unchanged throughout the run, takes a 460-ton train over the same course in 75 min. less time, with two intermediate stops instead of four, and no pilot or banking assistance, despite the altitudes of 915 and 1,015 ft. which have in succession to be surmounted. The Coronation Scot, loaded to 310 tons and with one stop, is 30 min. quicker than this. No less striking have been the developments on the East Coast route, where the 325-ton Coronation now makes, with one locomotive and two stops, a journey in 6 hr. which in 1913 the Flying Scotsman, on the average no more heavily loaded, required 2¼ hr. more to complete, with four intermediate stops and the service of four engines in all.

* * * *

A Little-Known Relay Interlocking

Although the relay interlocking installations at Thirsk, Goole Bridge, and Leeds are now well known, it is not such common knowledge that one was put into service in England before any of them, in 1926. It is to be found on the goods lines of the Trafford Park Company, Manchester, and though only a small piece of work, possesses some novel features. The problem there was to control train movements automatically on a triangle of three double-line junctions, with all points worked by hand and without track circuits, for which local conditions were unsuitable. It was met by providing splitting banner signals at each junction, normally at "stop," electrically detected with the facing points, and approach-cleared by treadle provided no conflicting move was in progress, a holding action coming into play directly a signal was put to danger by the passing train and locking conflicting controls until a "last vehicle" treadle at the end of the route released it. Should the approach action clear a signal for a direction not applying to the train, the crew had only to reverse the points for the correct one. This reset everything to normal and the required signal could then be obtained—provided, of course, everything was clear for it—by pressing a signal-post plunger. The whole of the interlocking had necessarily to be effected by relay combinations and it has proved quite satisfactory.

* * * *

Fresh Air or Foul?

With the adoption of the principle of air-conditioning in the design of our railway carriages there will be less occasion for the discord that has so often arisen between the fresh-air fiend and the passenger who dreads a draught. From the earliest days of railways, and perhaps even in earlier coaching times, the carriage window has been a cause for contention. The passenger seated facing the engine and near the window has claimed the right, perhaps with more moral than legal justification, to decide its position, and as a rule that supposed right has been exercised with due regard for the comfort of the other occupants of the compartment. But a traveller with fixed views on the subject of fresh air, or equally immovable convictions about draughts, is quite capable of charging the atmosphere of the carriage with an explosive mixture of prejudice and indignation, which if not dangerous is at least unpleasant. Now, with air-conditioning, there will be a desirable unanimity between the passengers, since all complaints (and railway passengers being what they are there will no doubt still be complaints) will be against the company and not against the wilful window opener or closer. Incidentally, if the real nature of the dust raised by the trains in dry weather, particularly in countries where stone ballast is not yet universal, were more widely known and recognised, the travelling public would not only welcome air-conditioning, but would insist on railway carriage windows being hermetically sealed.

* * * *

Six-Wheel Bogies

The controversy as to the relative advantages of 4-wheel and 6-wheel bogies never quite dies down and was once more raised in Sir Harold Hartley's recent paper to the Institute of Transport on "The Amenities of Railway Passenger Travel." In America the 6-wheel bogie is now very seldom incorporated in modern stock, whereas not many years ago it was apparently regarded there as an almost essential feature of the best type of construction. The American Society of Mechanical Engineers in 1913 discussed this subject and an estimate was then put forward that 6-wheel bogies cost an additional $700 per annum per car for hauling, doubtless due to the additional weight. On the European Continent the 6-wheel bogie has never been popular and is scarcely ever seen. The chief users in this country were the old Midland, and in later years the Caledonian. At the present time 6-wheel bogies are favoured by the L.M.S.R. and the Great Western for some sleeping and dining cars on the grounds of providing smoother riding, but the practice of both the L.N.E.R. and the Southern is to use the 4-wheel bogie exclusively. According to one of the speakers in the discussion of Sir Harold Hartley's paper, smoothness of riding appears to be much more a matter of maintenance than whether the bogies have 4 or 6 wheels, extremely smooth running being obtainable by either type, and conversely either type providing in certain circumstances very unsteady running.

* * * *

What Employers Want

Disappointed job-hunters must often speculate upon what manner of men find favour with employers. The impersonal requests issued from box numbers for particulars of experience and salary required, leave the applicant in doubt as to whether he should represent himself as aged or innocent, avaricious or frugal. Those who sought employment with the North Midland Railway in the 1840's, however, had the advantage of more explicit preliminary questioning. A correspondent has sent us the specification of the ideal employee as issued by the company for the guidance of a candidate. Perhaps the most sweeping requirement was that he should be prepared to "reside at such places and attend such hours as his duties may require." It was further stated that "no evidence of intoxication will ever be overlooked." The previous clause suggests that leisure for such indulgence might be infrequent; while from the warning that "he must not, on any occasion, or under any pretence whatever, receive gratuities from any person," it appears that the means might also be lacking. Further stipulations were "unvarying civility," and the faithfulness of a spaniel. The successful candidate was probably he who went to the interview on all fours, and barking.

XUM

American Railways' Financial Crisis

THE American railways are in the midst of the greatest financial crisis in their history—not excepting that which they went through during the war. The Interstate Commerce Commission authorised an increase in freight rates of a little over 5 per cent., when the railroads sought 15 per cent. At the present time freight traffic is averaging about 26 per cent. below what it was a year ago. Wages were increased last summer and autumn, and now the unions refuse to listen to any suggestions of a decrease, which means that relief, if obtainable in this direction, will have to take the course of long-drawn-out negotiations lasting, perhaps, for months. Meantime, the President of the United States has indicated that he does not favour wage reductions—and it is he who will be called upon to name a commission to resolve the dispute in the event of disagreement between railways managements and the unions. In February the railways as a whole suffered a deficit of some £400,000 after the payment of operating expenses and taxes, the first month in which this has happened since 1921, when post-war adjustments were being made after the return of the railways from Government to private operation. The limited freight rate increases which the Interstate Commerce Commission has allowed came into effect in April, and it is unlikely now that the railways are failing to earn at least some margin above their operating expenses. Yet the railways require some £130,000,000 annually to meet fixed charges (largely bond interest), and it would be optimistic indeed to predict that in the current year they will earn more than £80,000,000 toward this account. Even the Atchison, Topeka & Santa Fe, one of the strongest and most conservatively capitalised of the railways, has postponed interest due May 1 on its adjustment bonds.

Recognising the existence of a crisis, President Roosevelt called a conference of about a dozen men to advise him upon a course of action. Among them were three Interstate Commerce Commissioners, several Government officials and representatives of railway management, railway labour and the owners of railway securities. As reported on page 680 in our issue of April 1, it was from this conference that three Interstate Commerce Commissioners among its members (Messrs. Splawn, Eastman and Mahaffie) were appointed as a committee to draw up a programme. The following is a more detailed list of the committee's recommendations than we gave in our issue of April 22:—

1.—That the Government lend £60,000,000 to the railways to enable them to purchase rolling stock and motive power.

2.—That the Reconstruction Finance Corporation (a Government body) for a period of one year lend railways money needed to pay interest on bonds, so that further bankruptcies may be avoided.

3.—That Government credit be used where needed to facilitate railway amalgamation.

4.—That "land grant" rate reductions be ended. (Railways which received gifts of lands from the Government at the time of their construction are required to provide transportation for Government materials at reductions under ordinary rates, a stipulation which, it is estimated, costs the railways upwards of £1,400,000 annually.)

5.—That, while wage reductions would ameliorate the railway crisis, the three commissioners express no opinon for or against such reductions.

6.—That the federal bankruptcy law be modified to expedite the financial rehabilitation of the railways already bankrupt.

It will be observed that none of these proposals provides a quick method either of reducing railway expenses or increasing receipts, and hence they embody no genuine solution to the railway crisis. Further recommendations by the three commissioners are of a long range nature, *i.e.*, they would have no effect toward ameliorating immediate difficulties. These recommendations are as follows:—

1.—That the Federal Government set up a transport authority—a three-member board to "plan" for the railroads, encouraging them to minimise waste and curtail competition with each other.

2.—That certain "abuses" in railway financing recently brought to light by the Senate Committee on Interstate Commerce (such for instance, as the "holding company empire" built up by the late Van Sweringens) be abated.

3.—That all forms of transport competitive with the railways be regulated equally with them by one governmental regulatory agency.

The President sent the recommendations of these advisers to Congress, calling attention to the crisis, and asking Congress to enact the necessary legislation; but he did not make specific recommendations of his own. There is no real leadership in Congress, and members of that body are desirous of adjourning soon; so there is not much prospect of any real coming to grips with the situation by Congress. Meantime, the railways—through the Association of American Railroads—have urged that the unions consent to rescinding the wage increases granted last year, and that the Interstate Commerce Commission consent to a further increase of 5 per cent. in freight rates. Meantime, the individual railways are being forced to save the pennies wherever they can. There has consequently been a sharp fall in purchases of materials, and employees have been dismissed by the thousands. At the middle of March this year, railway employment totalled 927,308, as compared with 1,101,003 a year ago, a decline of 16 per cent.

* * * *

Railways and the Glasgow Exhibition

THE British railways are taking a very active part in connection with the Empire Exhibition at Glasgow which was opened on Tuesday by the King and Queen. They are prominently represented in the exhibition itself by a British railways pavilion which consists of an exhibit and inquiry bureau. In the former are shown sectionalised coaches of the four railways and an electric working model railway 140 ft. long passing through a diorama representing typical English, Scottish and Welsh scenery. Scale model trains of the Coronation Scot, The Coronation, the Cornish Riviera Express and the Brighton Belle trains run on this railway, at one end of which there is a model goods yard in which all the operations incidental to the working of goods traffic are conducted in miniature. The railway is signalled throughout in accordance with the latest railway practice, and controlled by a hidden operator. In the inquiry section a complete travel service is afforded visitors to the exhibition and tickets will be issued for any railway journeys, including tours. Externally, the pavilion is prominent by reason of its circular hall, nearly 40 ft. high, formed almost completely of glass, and by its tall mast encircled by four parallel lines symbolic of the four railways and carrying their initials. These lines extend to the top of the mast and are illuminated at night to form moving spirals of coloured light. Some pictures of the exhibition and the railway pavilion are reproduced on pages 897-8.

For the conveyance of passengers to the exhibition more than 20 express services are being run daily between London and Glasgow, while some 2,500 special trains have already been scheduled from all parts of the country for excursionists and organised parties, aggregating over a million passengers. An intensive train service is being provided from Glasgow to stations adjacent to the exhibition, one of which, Bellahouston Park, has been

specially constructed for the purpose. In Scotland a special programme of cheap fares has been introduced, including the issue of cheap tickets every day from all stations within a radius of sixty miles from Glasgow, while in addition day tickets are being issued twice weekly—on early closing days and Saturdays—from numerous stations beyond the sixty-mile limit. Arrangements have also been made for running numerous special excursion trips from London and the provinces at attractive fares. Additional attractions arranged by the railways include sightseeing tours by motorcoach round the city of Glasgow, and tours to the Clyde Coast, Kyles of Bute, the Trossachs and other places of scenic or historic interest. Evening rail excursions have been planned to numerous places, and short cruises arranged on the River Clyde by small motor vessels afford visitors an opportunity of seeing the famous shipbuilding yards and also the new Cunard liner *Queen Elizabeth*, now under construction. Passengers from London have the advantage of the accelerations in the Anglo-Scottish train services which came into force on May 2, as already announced in these columns. Still faster travel is available by the inauguration of a direct air service between London and Glasgow *via* Liverpool by Railway Air Services, which enables passengers to leave London at 9.30 a.m. and reach Glasgow at 12.50 p.m., an acceleration of about 50 min. over the previous service.

* * * *

Holidays with Pay

THE railway companies have a two-fold interest in the Amulree Report published last week and outlined on page 905. As employers of very large numbers of workpeople, they stated in evidence to the Amulree Committee last November that out of a total of 573,000 railway employers, over 538,000 already receive holidays with pay by agreement, and, in addition, some 27,000 are granted paid holidays, though not by agreement. The remainder, chiefly employed at docks, come under the transport workers' conditions. The companies made it clear in their evidence that they regarded the question as one for each industry to deal with according to its own economic circumstances, and not for settlement by statutory enactment. The committee does not wholly endorse this view, but recommends that there should be an interim or probationary period before any legislation is introduced requiring the general provision of holidays with pay. At the same time it favours the introduction at an early date and in a certain sense of legislation in connection with agriculture, with domestic service, and in industries where trade boards exist. Further, that during the Parliamentary Session of 1940-1 legislation should be passed making provision for holidays with pay in industry generally.

The second—and perhaps the main—interest of the railway companies in the report arises in their rôle of suppliers of transport. The committee states that whatever interpretation of "employed workpeople" is adopted the conclusion emerges in broad terms that a little over two-fifths of employed workpeople are at present provided with holidays with pay in one form or another. Some witnesses told the committee that the introduction of legislation making holidays with pay compulsory would affect "about eleven million people, many of whom would undoubtedly wish to make use of the facility to go away to holiday resorts." On the other hand, a witness for the Trades Union Congress General Council told the committee that he did not think there would be "a sudden rush to the seaside . . . but that there would be the development of a habit in parallel to which the railway companies and the accommodation services would automatically provide additional facilities." The problems involved in the provision of these "additional facilities" are matters of grave concern to the railway companies and will be almost impossible of mutually satisfactory solution unless some spread-over of the holiday period is achieved. The railway companies told the committee (para. 95) that if no change was made in the holiday period the difficulties of congestion could be met only by running earlier and later trains, which would not be so convenient to the public, and by instituting a system of rationing or allocating seats.

The kind of suggestion which was thought to be most helpful would be the adoption of the system of "staggering" the days of the week for travel so that holidays did not always begin at the week-end. The committee was impressed by the evidence, particularly that given by the railway companies, as to the advantages which would result nationally from the spreading of the holiday season. "The present position" in the opinion of the committee, "appears to be that the railway companies are waiting upon industry and the Board of Education to move in the matter, while undertaking such propaganda as they are able to, and that the Board of Education is waiting for public opinion to influence local authorities. In the meantime industry in general seems to be unwilling to make any start sufficient to give the movement the impetus necessary for it to develop in large proportions." The committee advances the idea of the establishment of a special branch of the Ministry of Labour "with a view to supervising the application and observance of the provision of holidays with pay, promoting the adoption of voluntary agreement for paid holidays and the spread-over of holidays, stimulating those responsible to make the school holidays to fit in with industrial holidays, and encouraging local authorities in holiday resorts to supervise the provision of accommodation for visitors and various kindred matters." While this suggestion has much to commend it, there remains the fundamental objection to anything which further tends towards Government interference with the administration of industry and the regimentation of the people.

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Canadian National Railways

ON the Canadian National Railways in the year 1937 there was maintained the progressive gain in revenues from the low point of $148,519,742 in 1933, and the increase over 1936 was $11,786,119 or 6·32 per cent. Some of the expected improvement in revenue did not materialise, due largely to crop conditions and also the sharp business recession in United States territory in the latter part of the year. The advance in freight revenues was $8,308,097 or 5·7 per cent., and there was an increase in tonnage on all regions except the western. Gross revenues from the transportation of grain grown in Western Canada in the years 1925-34 inclusive averaged $22,000,000 per annum, and the tons of grain carried averaged 5,000,000 during that ten-year period. In 1937, however, gross revenues of the railway from the movement of Western Canada grain were $9,643,572 or only 44 per cent. of those obtained on the average during the ten-year period ending in 1934, and were $6,134,130 below those of 1936, with a volume of only 2,356,656 tons, against 3,915,606 tons conveyed in 1936. At the same time there were increases in 1937 over 1936 of 16·51 per cent. in the tonnage of mine products, of 18·02 per cent. in the tonnage of forest products, and of 13·94 per cent. in the tonnage of manufactures and miscellaneous. Passenger revenues increased by $1,923,021 or 11·3 per cent. The additional air-conditioned equipment placed in service

during the year had a favourable effect upon passenger receipts. At December 31, 1937, there were 253 air-conditioned units in service, and the programme for 1938 provides for an additional 163 units. Express revenue increased $475,682 or 10·8 per cent. Hotel revenues continued to improve and resulted in an operating income for the year of $200,087 after providing for taxes, an increase of $40,070 over 1936.

Operating expenses advanced by $9,311,168 or 5·43 per cent. Increased rates of pay accounted for $2,800,000, and increases in prices of materials accounted for $3,500,000. An agreement was reached on March 29, 1937, between the managements of the Canadian National and Canadian Pacific Railways on the one hand and the employees on the other which provided for gradual reduction of the general 10 per cent. cut in wages which had been in force since May 1, 1935. The deduction became 8 per cent. on April 1, 1937; 7 per cent. on June 1; 6 per cent. on August 1; 5 per cent. on October 1; and 4 per cent. on December 1. The deduction became 2 per cent. on February 1, 1938, and basic rates were restored on April 1. Employees subject to other rates of deduction were dealt with by arrangements reducing the deductions proportionately. On Canadian National lines in the United States it was agreed to increase the rates of employees other than those engaged in engine and train service, by 5 cents. an hour from August 1, 1937, and of employees engaged in engine and train service by 5½ cents. an hour from October 1, 1937. This was in accordance with the agreement reached between the labour organisations and all other United States railroads. The programme of maintaining and of modernising rolling stock was augmented during 1937, with an additional charge of $2,500,000 to maintenance of equipment expenses. Flood damage and snow removal costs were $528,000 less, and the elimination of the unemployment relief maintenance of way programme meant a saving of $1,015,000. The accompanying table compares figures for the past two years:—

	1937	1936
Average miles operated ..	23,707	23,554
Tons—revenue freight ..	47,037,720	43,451,052
Ton-miles—revenue freight	15,165,051,267	14,813,796,415
Average haul, miles ..	322·40	340·93
Passengers	10,888,476	10,098,973
Train-miles	49,143,537	46,487,143
Operating ratio, per cent. ..	91·12	91·89
	$	$
Freight revenue	153,796,239	145,488,142
Passenger revenue	18,944,767	17,021,746
Total railway revenue ..	198,396,608	186,610,489
Total operating expenses ..	180,788,858	171,477,690
Net operating revenue ..	17,607,750	15,132,799
Net available for interest ..	8,287,228	6,408,911
Cash deficit	42,345,868	43,303,394

The traffic in 1937 was handled at a lower operating ratio than in 1936 notwithstanding the increases in wage rates and prices of materials. The improvement in net operating revenue was $2,474,951. The 37 mile section as between Senneterre and Val d'Or of the 100 mile Senneterre—Rouyn branch of 100 miles authorised in 1936 to serve the mining industry in North-Western Quebec was opened for operation on November 29, 1937. It is expected that the entire branch will be completed and in operation during 1938. The preparation of detailed agreements with the Canadian Pacific Railway for the abandonment of 637 miles of functionally duplicate lines, which have been approved for abandonment, is actively in hand. An arrangement has been completed for the closing of the Canadian Pacific Company's hotel in Vancouver and the joint operation of the new Canadian National hotel in that city, when that hotel has been completed and finished, which it is expected will be in 1939.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Ticket-Printing Machines in Germany

58, Barnfield Road,
Harpenden, Herts
April 4

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—After the B.B.C. had referred to the recent installation of ticket-printing and issuing machines by the London Passenger Transport Board, the London & North Eastern Railway sent a letter to *The Times* which pointed out that a machine of this sort had been in operation at Liverpool Street station for two or three years. Having travelled a good deal in Germany since 1920 without ever having been issued with a railway ticket that was not printed on the spot, I have just made some inquiries in Germany about the use of ticket-printing machines in booking-offices, and I believe the resultant information may interest you.

The first such machine was installed in 1909. Since then some 3,000 machines have been installed, made by Siemens, Pautze, and the A.E.G. The machines are of several types for various kinds of work. There is a type for suburban services affecting only a small number of stations; these machines are operated by pressing a button corresponding to the destination desired, and can deliver at the rate of 200 tickets a minute for any one destination.

For main-line booking offices the latest type is an ingenious machine into which the operator puts a matrix corresponding to the destination desired. These matrices are stored in racks which at first glance resemble the tubes of tickets in British booking offices. Each matrix bears only three indications: destination station, route, and distance in kilometres. All other particulars are supplied by the machine after the operator has pressed the button corresponding to the class of ticket which it is desired to print, *e.g.*, second-class ordinary single, week-end, or workman's return. The machine supplies the pasteboard blank, and prints not only the particulars from the matrix but also the amount of the fare and the serial number; at the same time it impresses the date. It further overprints the ticket with the colours appropriate to the class of ticket. All this is done and the ticket is delivered before the passenger has had time to get his hand into his pocket. The machines of course record and total all transactions.

The process can be watched, for in the modern booking-offices the front is of plate-glass from waist-level almost to the ceiling. The tidiness is striking, and it would appear that the Germans have realised that the booking office is the railway's shop-window. The impression given is wholly of neatness and efficiency.

Yours faithfully,

HUGH NICOL

Courier, Dean & Dawson Limited

NORTHERN IRELAND TRAFFICS.—Passengers carried on railways wholly in Northern Ireland (excluding season ticket holders) in the month of January, 1938, numbered 267,440 compared with 226,689 in January, 1937, and ordinary passenger receipts improved from £14,589 to £15,924. Merchandise and minerals conveyed in January, 1938, amounted to 45,523 tons, an increase of 98 tons on January, 1937, but the number of livestock fell from 17,192 to 16,760, and the total goods traffic receipts fell from £17,343 to £16,310. On railways partly in Northern Ireland the ordinary passengers in January, 1938, were 321,441, against 296,670 in January, 1937, and they brought in receipts of £29,039 which were £2,940 higher. Merchandise and mineral tons dropped from 75,900 to 69,859, but the number of livestock rose from 44,948 to 56,853, and the total receipts from goods traffic were £46,737, against £47,511 in January, 1937.

PUBLICATIONS RECEIVED

Kitsons of Leeds : 1837-1937. By Edwin Kitson Clark. London : The Locomotive Publishing Co. Ltd., 3, Amen Corner, E.C.4. 8¾ in. × 5½ in. × 1¼ in. 186 pp. + illustration plates and folding diagrams. Price 10s. 0d. net.—A hint is given on the title page of the type of book which Colonel Kitson Clark set out to produce, as he describes this volume as " A firm and its folk by one of them." This is precisely what he has achieved, for the present volume may be described adequately as a friendly autobiography of a firm. Throughout it is readable and intimate and gives more attention to personalities and trends of development than to meticulous recording. To some extent this may be the result of the lack of precise records regarding the early days of this famous Leeds firm, but, whatever be the reason, we are certainly given an interesting picture of the personality of the original James Kitson, and left in doubt as to the exact date on which he began locomotive building or the form of the partnership of which he was the head. We see this James Kitson as a remarkable man, the son of a licensed victualler whose father died while he was still a minor and left him to share with his mother the burden of embarrassed affairs, the management of the Brunswick Tavern in North Leeds, and the care of five younger brothers and sisters. His story contains many of the familiar features of nineteenth century engineering enterprise, such as the diligent study at the local Mechanics' Institution ; dogged perseverance ; local social activities as High Chief Ranger of the Ancient Order of Foresters ; and a happy ending quite in the spirit of Samuel Smiles.

In Chapter II Colonel Kitson Clark gives us a picture of Leeds in the early days as a locomotive manufacturing centre, and mentions in his genial way something of the characteristics of the men who were responsible for conducting not only Kitsons, but other firms in the neighbourhood. The author disclaims any intention of supplying a conscientious analysis of the Kitson output and has simply afforded us an opportunity of dipping into a miscellany of interesting details and incidents relating to some of the more notable productions of the firm. A separate chapter is devoted to tram engines, of which Kitson & Company was a pioneer and an outstanding manufacturer, but unfortunately the author falls into an error that has been made by previous writers in assuming that the Tramways Act of 1870 made provision for steam traction.

In more recent years the name of Kitson has been associated with many bold pioneering engineering enterprises and the familiar linking of the names Kitson and Meyer justifies an interesting section on articulated locomotives. The most recent—and commercially unfortunate—effort of Kitsons into the field of experimental engineering forms the subject of no fewer than 31 pages, entitled " Diesel Steam," in which Colonel Kitson Clark freely admits the mistake of undertaking such a task with inadequate finance. He accepts full responsibility for having persuaded his fellow shareholders to take the decision to make a diesel steam locomotive and in that sense for the subsequent financial embarrassment of the firm, but he makes no apology on technical grounds and few will deny that engineering knowledge is the richer for the Kitson Still experiments. Gradients and dynamometer car records are reproduced from THE RAILWAY GAZETTE (although an acknowledgement of their source seems to have escaped the author's attention) and the whole of this chapter is a brief and accurate account of an honest but unsuccessful endeavour.

As a finale, Colonel Kitson Clark quotes the remark of Nicias before Syracuse in 413 B.C., that " Men make a city, not walls nor ships unmanned," and within the limits of this dictum he has given us a most interesting volume of the stuff of which the firm of Kitsons has been made.

Electrical Progress.—Stockholders of Associated Electrical Industries Limited are issued every year with an illustrated and descriptive booklet showing equipment and installations recently supplied. It is a sign of the wide activities of the group that the items represented this year range from electric locomotives to domestic lighting fittings and radio or television valves. One of the electric locomotives for the South African Railways—of which 42 are on order in addition to the 120 already supplied—is illustrated ; also rolling stock supplied for the recently inaugurated Central Railway of Brazil electrification. In connection with the S.A.R. locomotives, it will be recalled that Sir Felix J. C. Pole remarked at the general meeting of Associated Electrical Industries Limited on April 1 that the railway officers in South Africa responsible for their operation spoke highly of their performance and reliability.

The Structure of Steel : Simply Explained. By Eric N. Simons and Edwin Gregory. London : Blackie & Son Limited, 50, Old Bailey, E.C.4, and Glasgow. 4¾ in. × 7½ in. 115 pp. Price 3s. 6d. net.—A book dealing with the technical complexities of steel which is not merely instructive but lively and in parts even amusing, is somewhat of a novelty. One of the two authors, who collected the original material, and who confesses himself to be a " non-technical man," remarks in his preface, concerning one or two queer kinks in human nature, that " certain experts regard the layman as an ignorant ass, and will not, therefore, go out of their way to make things clearer for him . . . On the other hand, the expert seldom writes well. Writing is a skilled job, and it is not easy for the unskilled labourer in this field to dig up and present his knowledge in digestible form, even when he is willing." However, in these two collaborators, Mr. Simons as the non-technical but intelligent writer of enquiring mind, and Dr. Gregory as the technical and competent revisionist, we have the ideal combination, and we have seldom read a more lucid explanation of the structure of steel, its physical properties, and the underlying basis and method of the tests by which its physical properties are established. The use made by the authors, of analogy in elucidating their explanations is particularly happy. Railway engineers who are intimately concerned with the use of steel, whether in track or rolling stock, will do well to have this admirable little handbook on their book-shelves for reference purposes.

Avonmouth Docks.—The Corporation of Bristol has issued from the Docks Office, Queen Square, Bristol, 1, an illustrated booklet describing a tour of the Royal Edward and Avonmouth. A folding map in colour shows the supposed itinerary, with references to the descriptions in the text of the various installations. The booklet gives a concise account of the modern equipment and spacious accommodation at the docks, and of the important traffic dealt with in meat, grain, and timber. Direct loading from cold stores and granaries into railway vehicles is a feature of the arrangements, while the 10-acre outdoor timber yard is served by its own system of sidings. To deal with ocean passenger traffic (mainly to the West Indies, Australia, New Zealand, and Burma) there is a railway station on the quayside of the Royal Edward entrance lock, whence ocean liner specials reach London or Birmingham in two hours.

Bakelite Progress.—This publication, from Bakelite Limited, 68, Victoria Street, London, S.W.1, appears at intervals to record new developments in the application of Bakelite mouldings. These range from furnishing and other domestic uses to the adoption of the material for insulating the armature windings of dynamos used on London buses. In motor vehicles, indeed, Bakelite mouldings find their most extensive transport applications, being suited by their mechanical and electrical properties to many types of insulating casings, sections of bodywork, and so on. Bakelite laminated sheet can be machined to form gears for the timing train of internal combustion engines. Other illustrations in the booklet show an air extractor (including a totally-enclosed electric motor) made of Bakelite mouldings. This form of construction is not only light and strong, but of a pleasing appearance that commends it for use in public rooms.

XUM

THE SCRAP HEAP

SIXPENCE ON THE INCOME TAX

"One Simon, a tanner."

* * *

KING LEOPOLD TRAVELS THIRD CLASS

The Basle police, having received notice from Brussels of King Leopold's impending arrival at Basle on his way to Tirol, searched all the Pullman cars of the arriving train to find and receive the King. They were much surprised to see him step from a third class carriage with a rucksack on his back. He had been travelling in this humble fashion under the name of Count Rety. After thanking the police for their courtesy he walked on with the crowd of passengers to another platform to board the Innsbruck train.—*From "The Times" Basle Correspondent.*

* * *

THE L.N.E.R. ROYAL TRAIN

In connection with the works now in progress for linking the London Transport tube line at Highgate with the L.N.E.R. surface lines, the L.N.E.R. is making its carriage sidings at Highgate available to the London Passenger Transport Board for the storage of tube trains. As a consequence the L.N.E.R. will have to find other accommodation for its Royal train. The future home of the train has not yet been decided, and it may go either to Bounds Green or to Doncaster.

* * *

At the suggestion of the Fleet Street branch of the British Legion, the City Surveyor has fixed a plaque on a buttress of the Southern Railway bridge at Ludgate Circus, to commemorate the fact that in a small shop near that spot was published the first English daily newspaper. This was the *Daily Courant*, and its first number appeared on March 11, 1702, a few days after Queen Anne had succeeded her brother-in-law, William III, on the throne. It was printed on one page only, demy size. Members of the Fleet Street branch of the legion, representing every section of the newspaper industry, have expressed their appreciation of the courtesy of the City of London authorities in adopting the suggestion, and also of the permission given by the directors of the Southern Railway for the plaque to be fixed on property belonging to the company.

* * *

The first sight of the towers of Manhattan, as his ship moves up the Hudson, strikes awe into the heart of the visitor. The mountains of steel, stone, and concrete look terrifyingly modern. Yet in many ways New York is not modern. No other great city would tolerate the elevated railroad, which excludes almost all daylight from four important avenues, with its cumbrous iron pillars and superstructure. The trains of the "El" have long been notorious, and unkind critics allege that the rolling stock dates from the time of the almost legendary Jay Gould, who developed the city's elevated railway system. Certainly the strings of ancient vehicles make life hideous for those who live near the line, and the passengers fare little better. Many of the omnibuses on Fifth Avenue appear to be replicas of "Old Bill," that hardy British war veteran, although these venerable machines are now giving place to new omnibuses very like those of the L.P.T.B. It is possible to travel up and down Manhattan by underground with great dispatch, but to move "crosstown," as the saying is, requires patience and ingenuity. The underground railway system runs straight from north to south, save where the lines turn towards Brooklyn and Queens. With the exception of one line, owned by the City, the underground system of New York has little but speed to recommend it. On the whole, with the exceptions mentioned above, the omnibuses are clean and comfortable, but such is the traffic congestion that it is easier and quicker to walk in the busier parts of the city. —*"The Times" New York Correspondent.*

* * *

FOREIGN CAPITALS SERVED BY U.S.A. RAILROAD

Many towns and cities in the United States have Old World names, and in a recent issue of our American contemporary, the *Railway Age*, Mr. W. J. Burton, of the Engineering Department of the Missouri Pacific Railroad points out that that system, which works 7,460 miles of line, serves no fewer than 14 towns and cities which bear the names of foreign capitals, viz. :—

Paris, Ark.	Rome, Texas
London, Ark.	Cairo, Ill.
Moscow, Ark.	Algiers, La.
Ottawa, Kan.	Prague, Ark.
Athens, Kan.	Edinburg, Texas
Delhi, La.	Belfast, Ark.
Warsaw, Mo.	Monrovia, Kan.

One Hundred Years Ago

Extracts from the May, 1838, issue of "The Railway Magazine" (afterwards "Herapath's Railway Journal") and the oldest constituent of THE RAILWAY GAZETTE

Birmingham Railway.—The two extreme portions of this line opened on the 9th ult., as we stated they would in our last. Nine coaches were set on to convey the passengers, &c., over the intermediate 35 miles, and we have heard that the whole were booked full for a week. It does not, however, appear that the daily receipts have equalled expectation. They are stated to be only £900 per day, whereas they should be £1,500 at least to clear expenses, and pay 5 per cent. Confined, however, as the company necessarily must be by the capabilities of the coaches on the intermediate part, it is not fair to judge of what will be by what is at present done.

Great Western Railway.—No doubt seems to exist, but that the portion of this line to Maidenhead, will open on June 4. Among all the great lines in this country—not even excepting our good and great railway Adam, the Liverpool & Manchester—no one has ever more intensely concentrated public attention upon it than the Great Western. Neither is this confined to England. France, Germany, Italy, &c., are all looking forward with the greatest interest to the opening of this line, as the period which is to decide a question, as important to railways as the introduction of them has been to civilised Europe. The engineer, Mr. Brunel, has, by one bold effort, made a leap from a gauge or breadth between the rails of 4 ft. 8½ in. to 7 ft., and has introduced other alterations in the machines and carriages to correspond with it.

Richardson's Patent Compound Rails for Railways.—Mr. Richardson, C.E., has invented a new rail, composed of a cast-iron part and a wrought iron. The latter, which is the upper part, is something in the shape of a T with the foot off, and hollow round shoulders, and slips into a corresponding form in the cast-iron bottom, in which it is bedded in compressed felt. From 12 to 20 lbs. per yard is the weight of the wrought-iron part; and the whole compound rail is of various forms, according as it is wanted for continuous bearings, or blocks. We should like to hear the opinions of practical men on this invention.

Bristol and Exeter Railway.—In excavating the ground on a portion of Pyle-hill, on the Bristol and Exeter Railway, a cavern was discovered upwards of 200 feet long, and about six feet in height. It is arched with stone.

Leeds & Selby Railway.—It appears that repeated attempts have been made to cause frightful accidents on this railway, by laying fir-rails across the tramroad during the night, by which the carriages travelling on the line might be thrown off their course. Happily, the vigilance of the company's servants has prevented any mischief from accruing from these malicious attempts.—*York Chronicle.*

[The best punishment for such wretches would be to contrive a whip, by means of an eccentric on one of the wheels, and tie them up, and let the train they would overturn soundly flog them for a journey or two.—ED., *Railway Magazine.*]

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

SOUTH AFRICA

Rand New Works

To give some idea of the extent of the new works on the Rand, it may be mentioned that a sum of over £6 million will have been spent on them in about three years. They consist mainly of the deviation, straightening, and lowering of the main line through the suburbs of Johannesburg. An elaborate flying junction at Langlaagte, and the electrification of the suburban services are among the most important other developments. The lowering of the western section of the line through Mayfair and Langlaagte has been completed, and two level crossings have been replaced by bridges.

The eastern section through Jeppe is not so far advanced, due partly to the rocky subsoil, and partly to the fact that two main roads cross the alignment, one on the level and the other, carrying trams, through a subway which at its deepest point is level with the new formation. When the new line is completed, both will cross it on overbridges.

New Electric Services

Steady progress has been made with the electrification, and services have been gradually increased, until, on February 1, the entire Reef suburban service was taken over and run by electric traction. The new services provide considerable accelerations, but are only experimental, and still faster schedules are expected.

The new Germiston—Kempton Park section on the Pretoria main line is expected to be opened in May, and then electric expresses will probably run from Johannesburg to the Capital in an hour, a saving of nearly one-third of the present fastest time.

Durban Main Line Deviation

The last important deviation on the Glencoe—Volksrust section of the Durban main line was opened on February 13 and is eight miles in length. It eliminates the last reversing stations on the S.A.R.

Commission to Frame New Construction Policy

Mr. A. Kuit, Chief Railway Commissioner, and Chairman of the Railway Commission appointed to investigate the advisability of linking up dead-end lines and the building of branches, stated recently that the commission had nothing to do with defence matters. Its only interest was railway lines within the Union of South Africa. The object of the commission was to procure certain ground for the Government over which railway lines could be constructed. The last two Governments of the Union had ceased to construct agricultural and development lines, and, as a direct result of this, there were now approximately 200 requests waiting for consideration, and it was the work of the present commission to examine these claims. The cost of constructing a railway line averaged from £8,000 to £10,000 a mile. It was obviously impossible to provide sufficient money to build all these lines. The commission had been appointed to find a new policy for the construction of lines and it was possible that a year might expire before it would be able to report any progress.

INDIA

Railway Works Programme, 1938-39

The broad features of the programme of works to be undertaken on Indian railways during the year 1938-39 have already been published in THE RAILWAY GAZETTE, but full details of the works expenditure provided for in the Railway Budget are also now available. The capital and depreciation fund programme provides for a total expenditure of Rs. 12¾ crores. The utilisation of stores in stock and credits for materials returned from works reduce the cash expenditure by Rs. 1¾ crores. The Railway Budget provides for a net cash expenditure of Rs. 9·40 crores, as previous experience has shown that the railway administrations are usually unable to spend their full allotment. It is proposed that a sum of Rs. 6·65 crores will be found from the Depreciation Fund and the balance will represent new capital.

A sum of Rs. 55 lakhs is provided for expenditure on the construction of the three new lines in Sind, particulars of which have already been given. The principal items in the open line programme are: Track renewals, Rs. 4 crores; bridge works, Rs. 75 lakhs; other structural works, Rs. 3 crores, and rolling stock, Rs. 4½ crores.

The rolling stock programme includes a provision of (1) Rs. 1·29 crores for locomotives and boilers, (2) Rs. 1·52 crores for carriages, and (3) Rs. 1·57 crores for wagons. A total of 3,161 wagons will be purchased during 1938-39, of which 2,095 will be broad gauge general service wagons to be added to the general pool in replacement of wagons already scrapped. Of the balance, 1,004 will also be replacements.

Chittagong Port and Assam-Bengal Railway

Presiding over the annual meeting of the Chittagong Chamber of Commerce Mr. J. A. Oliver said that during 1937 the value of trade at Chittagong Port amounted to Rs. 10·44 crores (£7·83 millions), an increase of Rs. 132 lakhs over the figures for 1936. The number of vessels entering the port during 1937 was 774, with a total tonnage of 547,431.

Up to the end of February, the earnings of the Assam-Bengal Railway were Rs. 6½ lakhs higher than in 1936-37, of which coaching traffic came to about Rs. 4½ lakhs and goods Rs. 2 lakhs. Mr. Oliver mentioned the opening of the King George VI bridge over the Meghna river as the outstanding event of the year, which had enabled the running of through trains between Chittagong, Mymensingh and Jagannathganj, and between Mymensingh and Mairabari and Silghat in Upper Assam. Many other improvements had been introduced, the most notable being the acceleration of the Assam mail trains between Tinsukia and Pandu, which had reduced the journey time between Tinsukia and Calcutta by eight hours. During 1936-37, 81 miles of main line had been relaid with heavier rails and a length of 96 miles, including the Chittagong—Laksam section was being similarly relaid during the current year. Safety of working was being improved by the resignalling and interlocking of stations between Akhaura and Badarpur, and it was proposed to extend this programme to stations between Tinsukia and Pandu during 1938-39.

In spite of increased earnings, the railway was still unable to meet the interest charges on the money invested in it by the Government of India. Economy was, therefore, very necessary. The railway administration was carefully examining the recommendations of the Wedgwood Committee with a view to their adoption where circumstances justified. The financial situation was likely to be worsened by the recent rise in the price of coal, which in 1938-39 would raise operating costs by about Rs. 2¼ lakhs. This might necessitate the adoption of a less progressive policy, as the running of services which were not well patronised or the addition of new services which were in any way speculative, could not be justified.

NEW ZEALAND

New Automatic Signals

The North Island line between Stratford and Okahukura (90 miles) is being equipped with track circuits and approach-lighted searchlight type automatic signals, points being manually worked by ground levers when necessary. Crossing stations have signals at each end for entering and leaving, with distant signals approximately half a mile out to warn drivers that they are nearing a station. The sidings not so equipped—as at Skinner Road—are linked in with the system, and unless it is safe to operate the points they are electrically locked.

Every signal will light up and show

the correct colour as the train approaches it, according to the condition of the line. The whole section will be operated from Edison type primary batteries, located at every signal.

Trains will be able to run between Stratford and Okahukura without any station staff being on duty. On a train entering a section between loops, all signals for the opposing direction will be kept at "danger," so preventing two opposing trains being between crossing loops at the same time. A "clear" indication cannot appear unless all relevant points are in the correct position.

The complete layout and circuits were designed by railway officers under the supervision of the Signal and Electrical Engineer, Mr. G. W. Wyles, and the apparatus is being installed by specially trained staff. [A general account of signalling in New Zealand, from a paper by Mr. Wyles, appeared in THE RAILWAY GAZETTE of January 28 last.—ED. *R.G.*]

VICTORIA

Committee to Study Suburban Traffic Requirements

In order the more effectively to deal with traffic on certain suburban lines at peak periods, the Railway Commissioners have appointed a committee to investigate every aspect of traffic operation in the suburban area. The committee is composed of Mr. J. M. Ashworth, Chief Engineer; Mr. S. R. Jones, Signal and Telegraph Engineer; and Mr. G. Rogers, Metropolitan Superintendent. Their terms of reference are to take a long range view and plan progressive steps considered necessary to meet immediate and future needs of traffic, and in particular to decide:—

(*a*) Whether underground city railways should be provided, to connect with the main V.G.R. system at, say, Richmond and North Melbourne, and having suitable stations in the city area.

(*b*) Whether the capacity of Flinders Street station can be increased appreciably by changing the present routing of trains, and/or re-arranging the existing layout and signalling.

(*c*) Whether any extensions of subways at Flinders Street will be required.

(*d*) What additional rolling stock will be necessary, and

(*e*) What additional track facilities are required between various points.

Faster Mildura and Geelong Services

Faster passenger schedules came into force on the Mildura line in February, and the reduction of travelling time since the series of accelerations began in 1934 now amounts to 2 hr. 24 min., Melbourne to Mildura, and 2 hr. 5 min. Mildura to Melbourne. On January 31, first and second class day cars and a first class sleeping car were introduced on this section. The accelerations also make it possible to travel from Mildura through Melbourne to Gippsland in from 14 to 17 hr. less time than was previously necessary.

On the Geelong line three daily trains now run at average overall speeds of nearly 50 m.p.h., the fastest schedule in Victoria after that of the Spirit of Progress. The 8.22 a.m. and 5.12 p.m. expresses from Melbourne cover the 45 miles in 55 min., and the 5.5 p.m. from Gelong is allowed two minutes longer. The track on this section is now claimed to be the finest in Australia.

Road Competition

Reviewing the financial situation recently, Mr. Clapp, Chairman of Commissioners, reported that in 1936-37, although goods and livestock revenue had increased by £261,000 over the figure for 1935-36, and despite the fact that the tonnage was 20 per cent. higher than in 1934-35, increase in revenue was under 4 per cent. higher. This was due to reductions in rates enforced by severe road competition.

CANADA

Senate Committee on C.P.R.-C.N.R. Joint Management

A special committee of 20 members was set up by the Dominion Senate on March 30 to probe the Canadian railway situation, examine the possibilities of adopting the suggestion of Senator Charles Beaubien for making an experiment with joint management of the Canadian Pacific and Canadian National Railways, and seek some effective solution of the grave financial problem created by the annual deficits resulting from operation of the publicly-owned system. Decision to establish the committee came after a lengthy debate which had occupied a number of sittings of the Senate, and there was no division either on the main motion of Senator Beaubien, the amendment of Senator Frank Black, or the sub-amendment of Senator James Murdock. There was apparent agreement that a service could be rendered the country by an exhaustive and non-partisan study of the question. The committee includes Mr. Raoul Dandurand, Government leader; and Mr. Arthur Meighen, Opposition leader, and other distinguished senators.

UNITED STATES

Official Model Railway System at New York World's Fair

Model railroad enthusiasts and railwaymen generally will be interested in the announcement that a complete working railroad system in miniature will be a feature of an international exhibit depicting the progress of rail transport to be presented by the American railroads at the New York World's Fair, 1939. Individual railroads went in for this type of exhibit at the Century of Progress, and also at the International Exposition at San Diego, where elaborate multiple track systems were displayed, with trains controlled by automatic block signals. At New York, however, sixteen acres of land are to be devoted to the railroad exhibit and pageant, and the extensive miniature railroad system will be housed in a great building which will stretch irregularly along one of the main avenues. In fact, it is said that the building will be larger than any other structure of the exhibition. Twenty-six railroads are sponsoring the New York World's Fair exhibit, including all lines serving Wyoming Valley, as well as the Jersey Central, Delaware and Hudson; Delaware, Lackawanna and Western; Erie; Lehigh Valley; and Pennsylvania systems.

CEYLON

The Railway Budget

The following are the principal features of the Railway Budget estimates considered at a recent special meeting of the Executive Committee of Communications and Works. An additional revenue of Rs. 1,000,000 is anticipated, made up of Rs. 550,000 additional earnings from passenger, road motor, and railcar services, Rs. 400,000 from goods traffic, and Rs. 50,000 from miscellaneous sources. Total gross earnings are placed at Rs. 17,500,000 and expenditure at Rs. 25,349,460. Though the current financial year's deficit is expected to be only Rs. 4,334,710, the estimated deficit of Rs. 7,849,560 next year is due to the inclusion of a sum of Rs. 4,891,500 for transfer to the Renewals Fund. For the current year only Rs. 662,400 is provided under this sub-head.

The following are sums which the railway should pay to general revenue, but which it cannot pay:—

1. Interest on capital invested by the Ceylon Government in the railway up to September 30, 1928 (Rs. 210,861,534) at 2½ per cent., Rs. 5,271,539.
2. Interest on capital supplied for new works from October 1, 1928, to September 30, 1938 (Rs. 16,219,300) at 3½ per cent., Rs. 567,675.
3. Interest on capital estimated to be supplied during the next financial year, Rs. 3,000.
4. Interest on current account debit balances with the Deputy Financial Secretary, Rs. 950,000.

Rolling Stock Programme

It is proposed to purchase a number of locomotives and railcars. No new locomotives have been delivered since 1930, and there is a shortage of 29 engines below the authorised stock. Of the balance, 14 are over age and near the end of their lives. A sum of Rs. 1,642,000 is budgeted for expenditure on a large programme of building rolling stock at the Ratmalana workshops, the necessary material being imported from abroad.

The accounts of the railway for 1936-37 show a net reduction of Rs. 444,610 in revenue as compared with the previous year. The comparative figures are as follow:—

	1935-36 Rs.	1936-37 Rs.
Coaching	6,995,060	7,030,767
Goods and livestock	9,301,392	8,741,857
Miscellaneous... ...	452,769	531,987

The traffic expenditure for 1936-37 was Rs. 18,720,830—a net decrease of Rs. 454,332 as compared with the previous year.

SOME CONSIDERATIONS AFFECTING AVERAGE SPEED ON CROWN COLONY RAILWAYS

Suggestions for increasing overall transit speed to provide faster service than can be given by road transport

By G. V. O. BULKELEY, C.B.E., Director of Transport, Nigeria

A RAILWAY has been facetiously defined as "an elongated property which is owned by the Chief Civil Engineer and upon which—by grace of the Chief Mechanical Engineer, under the jurisdiction of the Chief Traffic Officer and with the sanction of the Chief Accountant—the General Manager is permitted to run trains." There are compensations. When chiefs of departments rage furiously together, it is the G.M. who takes the chair.

An operating problem of major importance on colonial railways—one which calls for very close departmental co-operation and depends largely for its successful solution on the intensity and persistence of managerial drive—is that of average in-transit speed, which has to be brought much nearer to maximum speed than on high-speed railways.

Early Parsimony

To minimise cutting, embanking, and tunnelling, the construction of colonial railways largely followed contour levels and presents a high ratio of curvature to route mileage. A number of curves are of short radius. Furthermore, these railways were originally laid with shallow ballasted track embodying rails of light or medium section. The bridges followed suit. While re-laying in heavier track, bridge strengthening and curve diversions are now common policy, this expensive work usually has to await the availability of sufficient renewal and capital money when the life of the original track has terminated.

In the meantime, Chief Civil Engineers when laying down maximum speeds over various sections of line have to allow for the adverse features above mentioned. Their fiats invariably lay down low speed maxima, varying from 20 to 25 m.p.h. for 45-lb. rails to 40 m.p.h. for 80-lb. track. To these sectional maxima are frequently added the serious handicaps of still lower speed restrictions at specified curves and bridges.

Under such restricted maximum speeds the in-transit railway speed tends to fail in realising the general increase in transport speeds which are the present trend everywhere else, and even to fall below the speed of competitive road vehicles. It is clear that average in-transit speeds on these railways must approach as closely as possible to the sectional maxima allowed. To accomplish this, continuous research and co-operation by all departments is essential.

Effects of Low Average Speed

Low average speed also adversely influences locomotive and vehicle turn-round and has a direct bearing on the numerical stock of these necessary to work the railway. Expenditures on maintenance and on purchases are directly affected. Where maximum speeds are so low, every decimal point of improvement to average in-transit speed is a positive operating and financial gain. It is also of tangible benefit to traders. Where road competition exists, it is of additional importance. Moderate expenditure, guided by the statistics of continuous research, can accomplish much. The appointment of a whole-time research officer is justified on all counts.

In considering means by which average in-transit speed can be increased, it has to be borne in mind that the route mileage of colonial railways is mostly laid in single track and that their operating characteristic is generally a heavy seasonal agricultural export traffic. Again, the working staffs of Crown Colony railways are mostly of native descent: that is to say stationmasters, locomotive and train crews. All of these men pass through a prescribed system of training. While capable and painstaking in routine work, they often show less aptitude for complicated or emergency duties.

Lines of Research

The problem is one affecting the whole transit operation from forwarding point to destination. The following are some matters for consideration and research:—

(*i*) *Strengthening of Weak Bridges.*—This refers to those particular bridges which, lying in dips of the line, cannot withstand the impact of trains crossing them at the full speed allowed for the section in order to utilise momentum in climbing the opposite grade.

(*ii*) *Provision of Additional Train Crossing Places.*—This is a relatively inexpensive method of improving line capacity. The additional crossing places can, if desired, be brought out of use during the season of slack traffic.

(*iii*) *Improvements to Locomotive Shed Yards.*—Analysis of locomotive movements at engine changing running sheds may well reveal some awkwardness and delay in coaling, watering, ash disposal and boiler washing. A moderate expenditure on rearrangement to minimise locomotive movement in the yards will often materially speed up engine turn-round.

(*iv*) *Minor Improvements in Shunting Yards.*—Analysis of shunting movements will probably show that some of these are susceptible of minor refinements, such as an additional crossing or re-layout of connections which will shorten the length of shunting movement and better concentrate the work.

(*v*) *Adequate Preparation of Locomotives.*—Of importance on all railways, this is of special moment on Crown Colony systems. Given carefully prepared, fit locomotives, native drivers can be relied upon to operate them on their trains; but these men are not in general expert at making adjustments on the road or at coping with failures *en route*. Adequate preparation of locomotives is an essential to efficient train operation.

(*vi*) *Revised Train Loadings.*—Loadings should be such as to allow of good average speed through sections. A departmentally agreed basis is necessary. The empirical formula for locomotive cylinder starting effort is useless and takes no account of boiler capacity. What is required is the average actual performance of engine classes at, say, 15 m.p.h. Trains which are so loaded that engines can hardly crawl up grade and must exceed the speed limit down grade are bad operating. They also get drivers into unmerited trouble with the civil engineering department.

(*vii*) *Reduced Standing Times at Stations.*—Comprehensive diagramming together with analytical observation on the spot may well show standing times to be excessive. They are fatal to average in-transit speed. Some timetables may be so lenient in station standing times that the monthly figures showing proportion of trains running to time are merely self-deception. Only necessary station time should be allowed. Individual staff records in respect of competency in station work by station staff, train and engine crews should be made a determining factor in routine promotions.

(*viii*) *Aids to Drivers.*—Distant signals showing a yellow

aspect give confidence to drivers when approaching stations. Gradient inclination boards at points where the grade changes are a positive indication to drivers in respect of engine management. The provision of positive speed signs at every curve and bridge where there is a speed restriction below that for the section are of great assistance to drivers: the figure should be surrounded by a circle of red reflex lenses for illumination by engine headlight at night. In this connection, a standing instruction to " proceed slowly round all sharp curves " is useless and creates uncertainty, resulting in native drivers either exceeding necessary speed restrictions or proceeding at unnecessarily slow speed round easy curves. To ensure good average speeds without exceeding the maxima allowed, it is desirable that all locomotives shall be fitted with a simple form of speed indicator.

(*ix*) *Locomotive Acceleration and Free-Running.*—While present day purchases of locomotives will exhibit these characteristics, improvements can usually be made in the performance of existing engines. The surprising rejuvenation of locomotives on the French railways under the methods initiated by M. Chapelon indicates what can be accomplished by complete re-design of valve gears and front ends so as to improve the expansive use of steam and free the exhaust. Improved performance has also resulted from lining up the cylinders of those engines whose cylinder diameter is a high percentage of the stroke, reboilering them with a higher pressure and lengthening the valve travel to the extent which adjustments to the valve gear will allow.

While terminal working is outside the scope of this discussion, which deals with the progress of trains, it is clear that the rate of loading and offloading at forwarding points and at the port is a major factor affecting vehicle turn-round. Job analysis is essential at both ends of the journey. The average in-transit speed of freight trains should be posted weekly at all points for the information of the staff.

Improvement to the average in-transit speed of transport on colonial railways is not a matter of heavy additional expenditure, but one primarily of analysis and research followed by close departmental co-operation. Then, emerging from these two, an essential but moderate expenditure, which, if the preparation has been carefully done, should be an exceedingly good investment.

IMPACT STRESSES IN A FREELY-SUPPORTED BEAM

Tests with an ingenious instrument

IN a paper entitled as above by Dr. R. N. Arnold, and recently circulated by the Institution of Mechanical Engineers, the author draws attention to the fact that when a beam is subjected to maximum deflection from a falling weight its instantaneous shape is different from that it assumes under a static load. The resulting local bending and shear stresses are higher than those calculated from the measurement of greatest deflection, as in this case the usual theories assume a parabolic or sinusoidal form of beam distortion. A series of tests are described in which use is made of scratch extensometers. These instruments have a base 2 in. long and are fixed to the beam by three small set screws, one at the pivoting end of a short arm, which has very fine emery paper on its underside at the other end. This is gently held down to a polished metal strip held by the other two set screws to the beam. Before a test, the arm is pulled over to one end of the polished strip. The vibration resulting from the impact of a falling weight is sufficient to allow the spring in the arm to move the emery over the metal plate. The abrasive points of emery trace lines showing the change in the gauge length and thus give to some scale the variation of stress. Having a large number of scratches to choose from, a clear record can usually be chosen for examination and reproduction by means of a microscope.

The experiments show that the impact of a falling weight on the centre of an 8-ft. length of 112-lb. flat-bottomed rail is usually made up of a series of sub-impacts, which in the case of the heaviest weight used (470 lb.) number five. For any given weight this is independent of the velocity of impact. The bending stresses are shown to be about 20 per cent. greater than those derived from the " static " deformation of the beam. One unexpected result shown is that the strain, which varies almost directly as the velocity of impact, is only about 40 per cent. greater for a 470 lb. weight than for a 50 lb. weight.

Calculations based on a complicated equation produced by Timoshenko are in general agreement with the experimental results derived from the tests. An examination is also made of " contact ellipses " obtained by placing a very thin sheet of paper between the rail and striker. The high pressures involved make the paper almost transparent over the contact area.

The author draws attention to the frequent occurrence of impact on railway tracks, and states that " wheel loads may be of a very high magnitude even when the bending movements are relatively small." The paper certainly shows that the usual approximate theories may give results considerably lower than those which might be expected. It should, however, be borne in mind that the higher stresses are only local and of exceedingly short duration. Nevertheless, repeated impact at any one point may lead to fatigue failures, especially in the vicinity of rail fissures.

The scratch extensometers are ingenious, but the time scale is indefinite, and there are certain factors in the strain scale which it is thought are inaccurate. There is no doubt, however, about the general results obtained. Similar investigation in track under running conditions should prove very illuminating, and with so simple an instrument this would not be very difficult.

PENNSYLVANIA RAILROAD PRESIDENT ON POOLING.—A strong opinion on the subject of pooling receipts between railways was recently expressed by Mr. M. W. Clement, President of the Pennsylvania Railroad. Pooling, he said, was a premium on inefficiency and to him was just a distribution of revenue based on the creation of expense, and the railway which operated in the most expensive way would eventually be the greatest gainer, so that the only result in the end through a process of pooling was poorer service at greater cost to the public. Pooling receipts, he maintained, would paralyse incentive to capital improvement because of the uncertainty which would confront every railway management. What assurance, Mr. Clement asked, would they have that such capital expenditure would decrease costs and the ultimate cost to the public? The results from improvement and lessening the cost of the service, and those other things which brought about efficiency, would not inure to the public but to the carrier that had failed to make improvement. It would be the guarantee of a return on competitive extravagance that, in itself, in the end brings no benefit to the shipping public. As to co-ordination, he concluded, real co-ordination of railway facilities could come only through consolidation.

ROAD TRANSPORT SECTION

This section appears at four-weekly intervals

The Road Haulage Wages Bill

THE Government Bill—foreshadowed in these columns on April 8—to regulate the remuneration of workers employed in connection with the mechanical transport of goods by road, was introduced in the House of Commons on April 27, and follows fairly closely the recommendations of the Baillie Committee which were published in April, 1937. The provisions of the Bill are outlined on page 890 and we would at once say that we cannot but admire the consummate boldness and vision with which it is proposed that the present unsatisfactory labour position in the road haulage industry should be handled. The question of hours of work has already been dealt with by Parliament. The Road Traffic Act, 1930, limited the time for which drivers of certain motor vehicles may remain continuously on duty. This was a great step forward towards protecting the public against the risks which arise in cases where the drivers of motor vehicles are suffering from excessive fatigue and it also had the effect of restricting unfairly long hours of work. We are glad to see that the new Bill, which supplements existing enactments covering road motor transport, includes in its scope not only questions of remuneration, overtime, holidays, and suchlike conditions of service, but also questions related to safety on the roads, to the health and comfort of the workers, and, indeed, any other matter affecting their efficiency.

That the Bill, which contains some features not usually found in the realm of labour legislation, will give universal satisfaction is hardly to be expected, but it is evident the Government intends that the new law—when passed by Parliament—shall be obeyed. The Minister of Labour is to be empowered to appoint such officers as he thinks necessary for the purpose of securing the proper observance of the measure, and severe penalties are to be imposed on persons who fail to pay remuneration not less than the statutory remuneration, or who fail to keep the records as prescribed or who alter records or give false information. Clause I of the Bill lays down that staff employed by the railway companies shall be outside its scope. This exclusion was only to be expected—and, indeed, is merely justice—seeing that the remuneration of such staff falls to be determined by machinery of negotiation established between the railway companies and the railway trade unions, and since 1920 a national agreement covering the road transport staffs of the railways has been in active existence.

Part I of the Bill provides for regulating the remuneration of workers employed in connection with goods vehicles requiring " A " or " B " licences under the Road & Rail Traffic Act, 1933, and in these cases provision is made for an area board for Scotland and one for each of the existing ten traffic areas in England and Wales. The areas boards will consist of equal numbers of employers and workers, appointed by the Minister of Labour after consultation with the representative organisations. Moreover, a Central Wages Board for Great Britain is to be established. This road haulage Central Wages Board is to be empowered, after consultation with the area boards, to submit to the Minister of Transport proposals concerning remuneration, including holiday remuneration of the workers concerned, and the Minister is to be empowered to make an order giving effect to such proposals. The Central Board will also have power to make such recommendations as it may think fit to any Government department with respect to safety on the roads, the health and comfort of the workers to whom this part of the Act applies, and any other matters affecting efficiency and conditions of work.

A schedule to the Bill deals with the constitution of the Central Wages Board, which is to consist of between 39 and 41 members, including the Chairman and the Deputy Chairman. It will, in fact, comprise 12 members appointed by the Minister equally representative of employers and workers; 24 other members drawn equally from each side of the area boards; and, in addition, not fewer than 3 nor more than 5 independent members, of whom one is to be appointed by the Minister to act as Chairman and one as Deputy Chairman. We recognise that, in consequence of the extensive ramifications of the industry, there is a real need of a central body to co-ordinate the work of the various area boards. Nevertheless, we cannot but feel that a body composed of some 40 members is likely to prove unduly large. It may be remembered that under the Railways Act, 1921, a National Wages Board for railways was established. This consisted of 17 members including an independent Chairman, but difficulties were encountered in the working of a body so numerous and by agreement reached in February, 1935, between the main-line railways and the railway trade unions, a new body called the Railway Staff National Tribunal, consisting of only three members, was established to carry out functions broadly similar to those of the National Wages Board. We recognise that there are essential and fundamental differences between the present organisation of the two forms of transport, but the example of the railways is one which should not be set aside lightly.

Particular interest attaches to the proposals in respect of workers employed on " C " licence (ancillary users') vehicles, for the case of such staff presented an especially thorny problem to the Baillie Committee as well as to the Minister of Labour. The Baillie Committee recommended that " C " licensees should be divided into two classes: (i) those engaged in certain sections of retail distribution and (ii) other " C " licence drivers and statutory attendants. The committee also proposed that unless the negotiations then in progress in regard to wages and conditions in the retail distributive trades resulted in an adequate system of regulation, a trade board or trade boards should be set up to embrace these drivers. For the second class it was recommended that it should be a condition of the licences that all drivers and statutory attendants should be paid fair and proper wages and that these should be the same as those paid to " A " and " B " vehicle drivers, or that they should be reached by agreement. In both cases it was suggested that any disputes should be referred

to the Industrial Court. The present Bill does not follow these recommendations precisely, although probably the ultimate effect will be the same. In Part II of the Bill it is proposed that remuneration in respect of workers on vehicles operating under a "C" licence shall not be deemed to be unfair if it is equivalent to statutory remuneration payable for corresponding work on vehicles operating under an "A" or a "B" licence, or if it is in accordance with a trade union agreement with the employer or his organisation, or is equivalent to the remuneration payable for corresponding work by other similar employers in the district under a trade union agreement, or under a decision of the Industrial Court. Workers on "C" licence vehicles, who consider that their remuneration is unfair may make a formal complaint to the Minister, who after representing the matter to the employer, is required, in certain circumstances, to refer the complaint to the Industrial Court for settlement. It remains to be seen, of course, whether or not the Bill will be substantially amended during its progress through Parliament, but in its present form it represents a courageous attempt to adjust a state of affairs in the road transport industry which for a long time has been in urgent need of attention.

Road-Rail Co-ordination in India

AT the recent inauguration in Delhi of a North India branch of the Indian Roads and Transport Development Association, Colonel Smith, Organising Secretary of the association and member of the Central Assembly, in opening the proceedings, emphasised that road-rail co-ordination was one of the very important objects the association kept in view. It had no intention of improving road systems to the detriment of other forms of transport, and its purpose was to work in conjunction with railway, bringing pressure to bear where it was most likely to benefit the community as a whole. The association also refrained from fostering any movements likely to induce undue competition or a state of affairs harmful to any other existing transport interests that were serving the needs of the public to its satisfaction. A well-thought-out system of road development which would dovetail in with the railways and other transport systems, was, the association felt, what was required, so that such development would assist the railways by bringing to them increased passenger and goods traffic, which, without the new connecting links entailed, might never reach the railways at all. Were all such associations imbued with a spirit of true co-ordination similar to that advocated by Colonel Smith, the general public and all forms of properly organised transport would benefit accordingly.

Berlin Transport

FOR the past ten years the various forms of local transport in Berlin (other than those owned by the Reichsbahn) have been in the hands of a municipally-controlled company called the Berliner Verkehrs A.G. This company, commonly called the B.V.G., has now been wound up, and the whole undertaking, with its equipment, transferred to the direct ownership of the city administration as from January 1, 1938. The services are managed by a business board, under the city advisory transport council, acting for the authorities. A further consultative committee of experts, appointed by the city, assists. The three main units of the undertaking are the "U-Bahn," or underground and elevated electric railway system; the tramways; and the buses. The first-named was formed in 1897 and opened in 1902. Subsequent extensions have brought the lines up to a total of 50 route miles of standard-gauge track, worked by 645 motor and 501 trailer coaches. In 1926 the Municipality of Berlin acquired a controlling interest in the U-Bahn, and in the following year a working agreement was drawn up between this system and the tramways and the omnibus company. Finally, in 1928, the three companies were amalgamated to form the B.V.G., or Berlin Transport Company. The present tramway stock is 1,562 tramcars, 1,266 trailers, and 9 trolleybuses. Berlin is the only city in Germany with an extensive local motorbus service, and this involves the use of some 631 buses.

Trolleybus Conversion Problems

ONE of the incidental problems in connection with large-scale tramway to trolleybus conversions, such as the London Passenger Transport Board is undertaking in North London, is provided by the fact that it is necessary to play a game of draughts with the vehicles during the night of the changeover. For example, in the early hours of March 13 last London Transport operating officials had to withdraw 93 tramcars and re-shuffle 37 others, and also to shift a fleet of trolleybuses. Altogether 300 moves had to be made, and the whole process was completed in less than six hours. Most of the tramcars that were to be withdrawn from service were run into the Holloway depot. There they were stripped of destination boards, route numbers, blinds and other fittings, and were then transferred to the Hampstead depot for breaking up. The chassis were subsequently dismantled and suitable parts placed in stock for use as spares for the tramcars still in service. The bodies were sold to a contractor. In addition, 28 modern Feltham-type tramcars were transferred from Wood Green depot to Streatham depot, and have been placed in South London service. Moreover, 35 tramcars were moved from the Finchley depot to the Wood Green depot to enable the conversion of Finchley depot for trolleybus purposes to be completed; there are now 84 trolleybuses at Finchley. At the same time as this work was going on, 50 trolleybuses were brought from other depots, chiefly Hounslow and Hendon, and stored at the Finchley depot ready for service in the morning. Previously, 54 trolleybuses had been transferred to the Holloway depot, which, when completed, will have accommodation for 230 trolleybuses.

Road Transport and the Budget

IN common with all forms of transport, road travel may be expected to suffer from the effects of the Budget in reducing the spendable income of the individual. Both as the result of the increase of income tax from 5s. to 5s. 6d. in the £, and also indirectly through the repercussion of increased indirect taxation, the ordinary man will find it necessary to reduce his expenditure on luxuries, of which non-essential transport and holidays are a part. Furthermore, road transport has already been called upon to shoulder an additional share of the national burden in the form of an increase from 8d. to 9d. a gallon on petrol and fuel oil which became effective in the evening of April 26. Petrol duty was first introduced in Great Britain on April 30, 1909, when 3d. a gallon was levied. The duty remained at this level until September 22, 1915, when it was raised to 6d. On January 1, 1921, the duty was abolished, but it was reimposed, at 4d. a gallon, on April 25, 1928. There were two advances in 1931, namely, to 6d. on April 28, and to 8d. on September 10. For a time the use of diesel engines was encouraged by a rebate for diesel oils of 7d. out of the 8d. payable on fuel oil generally, but the Finance Act of 1935 withdrew the rebate on heavy oil used as fuel for road transport vehicles. The result was to standardise

the duty at 8d. a gallon on all oils, whether light or heavy, of imported origin, used as fuel for road vehicles. In the taxation year just ended the yield from duty on all oils was £50,143,000. Petrol consumption in this country last year was 1,445,466,000 gallons, against 1,363,531,000 gallons in 1936.

Publications Received

Histoire de la Locomotion Terrestre: La Voiture, le Cycle, L'Automobile. By Baudry de Saunier, Charles Dollfus, and Edgar de Geoffroy. Paris: *L'Illustration*, 13, rue Saint-Georges. 15¼ in. × 11¼ in. × 1½ in. Fully illustrated. Price fr. 285. 447 pp. + xvi pp.

The well-known French journal *L'Illustration* has produced a collection of handsome albums dealing with the history of all forms of transport, and the volume "Les Chemins de fer" was reviewed in our issue of October 18, 1935. We now have the companion volume dealing with all branches of what may be termed broadly "road transport," although actually the authors take their story back to a period long before made roads existed. Two of the authors, namely, Messrs. Charles Dollfus and Edgar de Geoffroy, were responsible for the railway volume and, as is indicated by the heading of this review, they have been joined by M. Baudry de Saunier in the enormous task of producing an illustrated survey of the whole development of human locomotion by land (other than rail transport). In Part I, M. Edgar de Geoffroy begins with the first instinct of mankind to walk and thereafter to migrate from one spot to another in order to find a more desirable home and literally to seek "pastures new" when his cattle have exhausted the immediately-surrounding supplies. After a brief account of human locomotion with such simple aids as stilts, the story is taken through the whole development of animal locomotion, first of all to transport the human being and also as a beast of burden. The illustrations in this section are remarkably fine, and their assembly is undoubtedly the result of both profound and wide study.

Vehicles make their entry into the story as litters for both human and animal carriage, sledges, and the like, all of which could precede the existence of any form of made road. Particularly fascinating is the chapter devoted to the evolution of the wheel, in which with proper caution it is pointed out that the origin of the wheel has proved to be an impenetrable mystery. The popular but almost certainly fictitious derivation of the wheel from the roller is discussed and many very ancient illustrations of the wheel are reproduced, always, be it noted, as built-up specimens and not the conjectured but highly improbable section of a tree trunk. The story next takes us through the developments which followed the establishment of some form of road and the natural consequence of applying animal traction to a wheeled vehicle. This combination lacked only one thing, and that was a device for pivoting the front wheels of a four-wheeled vehicle in such a way that corners might be turned easily; perhaps the most extraordinary feature in the whole story of the evolution of the wheeled vehicle is the long period that elapsed before such an apparently simple and obvious device was adopted.

Another step in the development of road transport which receives due attention is the establishment of regular scheduled services primarily for the conveyance of mails, and, to a smaller extent in the early years, for the comparatively few passengers requiring such facilities. Braking methods also deserve and are accorded separate treatment, and the development of tyres for animal-drawn vehicles is brought right up to the minute by showing pneumatic-tyred wheel-barrows and lumber carts. That the combination of pneumatic tyres and horse-drawn vehicles is not new is demonstrated by a picture of a small pneumatic-tyred horse-drawn omnibus in the service of the chemin de fer du Nord in 1910. At this point a break is necessarily made in the chronological sequence in order to deal with devices for the better application of the human leg power, or in other words the predecessors of the modern bicycle.

Doubtless the section of the volume of greatest interest to the present-day road transport industry is that entitled "La Locomotion Mecanique" for which we are indebted to the researches of M. Charles Dollfus. Of a section in the hands of so well known a transport historian, it is unnecessary to say more than that it is fully up to the standard of his previous work and bears throughout the marks of intensive research and wide knowledge. His earliest illustration is of a war machine bearing the date 1475 designed to be propelled by the wind by means of windmills on each side transmitting their power to the road wheels through gearing. The application of wind power to land transport is also shown in the more practicable form of wheeled vehicles equipped with sails, and some of these were used successfully about 1600 on the Dutch coast. M. Dollfus quotes the experiments of Ferdinand Verbiest about 1681 as the first application of steam to the propulsion of carriages, and, although the story is not continuous from that date, there can be little doubt, according to the information at present known to us, that this is the first recorded example. As might be expected, the work of Cugnot is recorded in a well-documented story, and from that time the development of mechanical transport is continuous. The works of Murdock, Symington, and Trevithick all find their places, as well as the less-known activities of Robert Fourness, Rivaz, Charles Dallery, and others. Most of the early experiments were concerned with constructing what was, in effect, a road tractor, but beginning about 1824 inventive thoughts were directed to the construction of self-contained passenger-carrying automobiles. A notable feature of this section of the volume is the faithful way in which the continuity of development is recorded during the second and third quarters of the nineteenth century—a period of discouragement both as the result of restrictive legislation and also because of the increasing spread of railways and the failure in many parts of the world to maintain roads adequately. A curiosity which is illustrated is the steam locomotive *Rurik*, built by Neilson & Company in 1861 for service on the ice of the River Neva between Petersburg and Kronstadt.

The modern motorcar and motorcycle also have a fascinating story which, although it is within the recollection of many, yet contains a wealth of forgotten detail that this volume recalls to mind and crystallises. For example, a page of radiators as they were in 1906 emphasises the enormous strides of the past three decades. Road signs; modern highways and highway construction; racing tracks; service garages; and agricultural motors all find their places in what we have little doubt is the most comprehensive and best illustrated story of the development of land transport which has yet been published. Both the authors and the publisher are to be congratulated on having completed a very fine piece of work for which every road transport historian is indebted, and yet which is presented in such a way that the ordinary reader will find a fascinating and profusely illustrated story.

Dunlop: 50 Years of Growth.—A comprehensive review of the development of the pneumatic tyre has just been issued by the Dunlop Rubber Co. Ltd. in the form of a handsome brochure entitled "Fifty Years of Growth." The purpose is to celebrate the jubilee of John Boyd Dunlop's invention of the pneumatic tyre, for which he applied for a patent on July 23, 1888. In the words of Sir George Beharrell, the Dunlop Chairman, it was an epoch-making advance, for "without the pneumatic tyre, the world would never have known the development of the cycle, the motorcar, and the aeroplane as we know them today." What those changes have meant is illustrated in picture and text in this anniversary book.

Dunlop, who was an Irish veterinary surgeon, had carried out his experimental work on a tricycle made by Edlin & Co. of Belfast, and it was this company which advertised in the *Irish Cyclist* of December 19, 1888, the "new pneumatic safety: vibration impossible." With the support of Mr. Harvey du Cros, the first pneumatic tyre company was formed in Dublin, and issued its prospectus in November, 1889. The subsequent story of the remarkable progress of the company tells of the 50 years of research and experience that have gone to make the famous "Fort" tyre, and of the application of rubber not only to tyres, but to sports goods, shoes, garments, and to such homely and personal products as mattresses, cushions (of "honeycombed" rubber), and handbags.

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Road Transport as a Railway Ancillary Business

This is the third of the series of articles dealing with the ancillary businesses of the British railways in 1937

THE road transport business of the British railway companies is dealt with in two separate sections of the annual accounts, namely, Account No. 11, which relates to traffic conveyed throughout by road; and Account No. 16, which is concerned only with the collection and delivery of railborne traffic. In actual practice, however, there is considerable interworking by reason of the fact that many cartage units deal with both rail-borne and non-rail-borne traffic in the course of their regular rounds. In the case of the L.N.E.R. and L.M.S.R., Account No. 11 also includes receipts from passenger services, which, of course, are the motorbus services operated in conjunction with certain municipalities.

Financial Results

Details of the financial results of the road transport business of the respective companies last year are given in the following table:—

ROAD TRANSPORT—ACCOUNT NO. 11

Railway	Gross receipts		Expenditure		Surplus		Percentage of surplus to gross receipts	
	1937	1936	1937	1936	1937	1936	1937	1936
	£	£	£	£	£	£		
G.W.R.	73,226	85,081	59,378	69,308	13,848	15,773	18·9	18·5
L.N.E.R. ..	201,744	201,386	162,840	169,709	38,904	31,677	19·3	15·7
L.M.S.R. ..	408,890	396,400	339,625	329,067	69,265	67,333	16·9	17·0
S.R.	23,703	24,278	17,384	17,319	6,319	6,959	26·7	28·7

COLLECTION AND DELIVERY OF PARCELS AND GOODS—ACCOUNT NO. 16

G.W.R.	1,038,194	982,534	1,278,274	1,180,186	Dr. 240,080	Dr. 197,652	—	—
L.N.E.R. ..	1,362,669	1,318,654	1,766,518	1,636,298	Dr. 403,849	Dr. 317,644	—	—
L.M.S.R. ..	2,377,276	2,275,451	2,839,257	2,682,248	Dr. 461,981	Dr. 406,797	—	—
S.R.	542,975	519,195	532,344	499,024	10,631	20,171	2·0	3·9

In the case of road transport (Account No. 11), the total gross receipts of £707,563 were only £418 more than in 1936, but expenditure declined by £6,176, with the result that the net profit of £128,336 was £6,594 greater than in the previous year. G.W.R. receipts fell by £11,855, but as it was possible to reduce expenditure by only £9,930, there was a reduction of £1,925 in the net profit. L.N.E.R. gross receipts showed an increase of over £9,000 in the case of passenger traffic, but the revenue from goods services declined by approximately the same amount, and the total gross receipts were only £358 greater than in 1936. There was a reduction of £6,869 in expenditure, however, chiefly in respect of hire of vehicles, with the result that the net revenue of £38,904 was £7,227 greater than in 1936. The gross receipts of the L.M.S.R. increased by £12,490 but, as in the case of the L.N.E.R., this was due entirely to improved passenger business, the revenue from which was £17,484 in excess of the previous year, whereas goods receipts declined by £5,126. Expenditure increased by £10,558, chiefly in respect of traffic expenses, and the net receipts of £69,265 were £1,932 greater than in 1936. In the case of the Southern Railway, gross receipts were £575 less than in 1936, but the expenditure, which included a transfer of £318 to renewal or suspense account compared with a withdrawal of £446 in the previous year, showed an increase of £65, the net profit thus declining by £640.

The collection and delivery services proved more costly than ever last year. Each of the four groups secured a substantial increase in gross receipts as a result of improved traffics, but working expenses rose in greater proportion, with the result that, in the case of three companies, there were considerably increased losses, while the Southern Railway profit was reduced by nearly 50 per cent. G.W.R. gross receipts were £55,660 greater than in 1936, but expenditure increased by £98,088, chiefly in respect of traffic expenses and maintenance of motor vehicles, so that the net loss, at £240,080, was £42,428 more than in the previous year. The L.N.E.R. secured an increase of £44,015 in gross receipts, but expenditure rose by £130,220, principally under the heads of motor maintenance and traffic expenses, with the result that the loss advanced by £86,205. L.M.S.R. gross receipts increased by £101,825, but here again there was a substantial rise in working expenses which, together with an increase of £51,000 in the amount transferred to renewal account, resulted in a loss of £461,981, or £55,184 more than in 1936. The Southern Railway is still in the fortunate position of being able to show a profit on its collection and delivery services. Gross receipts last year were £23,780 more than in 1936, but the total expenditure rose by £33,320 and the net profit decreased by £9,540. It should be pointed out, however, that the expenditure included £10,285 transferred to renewal or suspense account compared with a withdrawal of £7,239 in 1936.

Cartage Equipment

Increased traffics have necessitated constant additions to the cartage equipment of the railway companies, and a capital expenditure of £368,383 was incurred last year on parcels and goods road vehicles, bringing the total capital expenditure under this head up to the huge figure of £4,193,659. A further sum of £130,000 is included in the estimated expenditure on capital account for the current year. At the end of 1937 railway-owned motor vehicles numbered 9,781, which included 3,313 mechanical horses; the number of horses was 12,742; and the total of railway horse vehicles stood at 25,075. In addition,

the companies owned 13,819 containers, including many special types for building materials, furniture, bicycles, grain in bulk, and so forth. It will be seen that, despite the motorisation which has been a feature of recent years, the railway companies still rely to a considerable extent on horse transport. It is interesting to note that the L.M.S.R. owns no fewer than 8,154 of the 12,742 railway-owned horses. A short article on L.M.S.R. horses, and the modern methods used for supplying provender, was published in our issue of December 17 last.

In order to cope with the great variety of articles which the railways are now called upon to handle, many special types of road vehicles have been evolved. Last year, for instance, the G.W.R. introduced a special lorry fitted with flat body and bolsters for the carriage of girders and long iron principally in connection with aerodrome contracts, while one of the same company's drop-frame trailers was fitted with sockets and stanchions for the conveyance of plate glass, an alternative set of equipment enabling it to be used for the transport of livestock. The numerous Government works resulted in much additional special traffic, such as the delivery of pipes to remote villages in connection with water supply schemes in rural areas.

Country Lorry and Railhead Services

The country lorry services of the railway companies become indispensable to village communities, for which they constitute a valuable rail-road link between city, hamlet, and farm. Railhead delivery services are now used by hundreds of firms who find them of the greatest possible assistance in connection with the prompt delivery of goods to customers situated anywhere within an area of about 30 miles of the railhead, to which traffic can be loaded in bulk.

The London " tranship " scheme for the exchange of traffic between the four main-line railways is proving highly satisfactory and has enabled the companies to effect substantial economies as well as speeding up transits. The working of this scheme formed the subject of a short leader in our issue of November 19 last. A fleet of 30 articulated Scammell tractors and over 150 trailers was engaged upon this scheme at the close of 1937, covering thirty routes, all worked to a strict timetable.

Overseas Notes

The Rule of the Road in German Austria

The rule of the road in German Austria, which varies at present between " keep to the left " in some districts and " keep to the right " in others, will be universally " keep to the right " for the whole of German Austria from October 3, 1938, as foreshadowed on page 710 of our April 8 issue.

The Key West Highway Opened

The toll road built on the track of the former Key West line of the Florida East Coast Railway was opened on March 29. The new highway runs southward and eastward from the extreme tip of Florida, extending from key to key on converted railroad bridges, including one seven miles long, claimed to be the longest bridge in the world entirely over water. At the Bahia Honda bridge, the highway is carried over the top truss spans, 60 ft. above the water. Trains crossed this bridge at a lower grade level, but because the space of 14 ft. which was sufficient for trains was not wide enough for a highway, the roadway has been lifted to the top of the girders. The highway has been hard-surfaced for its full length, with a 20-ft. roadway between curbs over all bridges. Tolls for travel have been set at $1 for a car and its driver for the entire trip, with 25 cents extra for every additional passenger. A brief account of the work of conversion from a railway to a highway was published in our issue of January 14.

Combined Passenger Service in New Zealand

A new road passenger service between Hokitika and Greymouth, on the west coast of South Island, was inaugurated by the New Zealand Railways Department in February. It connects with the existing road services to and from Westport and with the southward services to the Franz Josef and Fox glaciers. In conjunction with the new road service, two additional railcar trips have been provided between Hokitika and Greymouth.

The new service should prove of considerable advantage to tourists and others visiting the west coast, as the new service acts as an important connecting link in round trips from Christchurch *via* the recently-opened Lewis Pass and Flowery Creek roads to Westport, and thence to Greymouth, Hokitika, and the glaciers. Returning from the glaciers to Christchurch, travellers may choose either the road route to Arthur's Pass to connect with the train for Christchurch, or continue to Hokitika or Greymouth by road, joining the rail at either place or the homeward run by railcar or train *via* the Midland line.

Baghdad Passenger Transport

A Bill to provide for setting up a Metropolitan Passenger Transport Board to operate a modern bus service in Baghdad and its suburbs, under the supervision of the Government, has been submitted by the Council of Ministers to the Chamber of Deputies, and is expected to be passed quickly by Parliament in view of the public demand for a bus service operating up-to-date vehicles. The capital of the board will be £200,000, which will take the form of a loan under Government guarantee. The Government will advance the board a sum not exceeding £20,000. It is understood that the initial fleet will comprise 100 single-deck diesel-engined buses with 32 seats and accommodation for 18 standing Passengers.

Railway and Motor Tunnel between Italy and Sicily

Plans for a submarine tunnel to link Italy with Sicily have been approved by the Duce and travellers by rail or by road may soon be able to reach the furthest point of Sicily without leaving their compartments or their cars. The scheme has been prepared by Professor Ando who has been advocating the advantages of this tunnel for a quarter of a century. It entails building two parallel tunnels, one to be used exclusively by electric trains, and the other for motor traffic. The tunnels will be sunk at a depth of 190 ft. below sea level and will be approximately 7 miles long, their entrances on both sides being well inland in order to avoid steep gradients. The motoring track will be on the system used by the *autostrade* or motor roads of Italy, with automatic signals and ample room for two-way traffic. Motorists will be charged a fee proportionate to the size of the car and the number of persons travelling. It is believed that, apart from its tourist and commercial value, the tunnel will be of strategic importance as it will enable troops to be transported from one end to another of the kingdom without sea crossing. A limited company, strongly backed by the Italian Government, is to be formed to undertake the construction and working of the tunnel.

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Wages in the Road Haulage Industry

An outline of the main provisions of the Road Haulage Wages Bill, which was introduced into the House of Commons on April 27

THE Government Bill dealing with the remuneration of persons employed in connection with the mechanical transport of goods by road was introduced in the House of Commons by the Minister of Labour on April 13. Subsequently, this Bill was withdrawn, but on April 27 the Minister of Labour presented Road Haulage Wages (No. 2) Bill which is generally similar to the original text, but with one or two drafting modifications. The Bill, which follows in the main the recommendations in the report of the Baillie Committee on the regulation of wages and conditions of service in the road motor transport industry (goods), is divided into three parts: the first deals with "A" and "B" licence vehicles, the second with "C" licence vehicles, and the third includes the provisions necessary for the operation of the proposals.

Part I thus deals with employment in connection with the motor vehicles of public carriers. It makes provision for the establishment by the Minister of Labour of a Central Wages Board for Great Britain, and for area boards, one for the whole of Scotland and one for each of the traffic areas in England and Wales. The area boards will consist of equal numbers of employers and workers appointed by the Minister of Labour after consultation with the representative organisations.

Central Wages Board

The main functions of the Central Wages Board (the size and composition of which we discuss in a leader on page 885) will be to submit to the Minister of Labour proposals for fixing the remuneration to be paid to any road haulage workers, including holiday remuneration; and to make recommendations to any Government department with respect to safety on the roads, the health and comfort of the workers, and any other matter affecting the efficiency of, and conditions of work in connection with, the transport of goods in or on vehicles for which "A" or "B" licences are granted. The Board is also empowered to specify the time during which a worker must be employed on road haulage work in any day or in any week respectively in order to render payable any daily or weekly rate proposed by the board; to specify the number of hours of employment after which overtime will be payable; and generally to make provision for specifying the work for which any remuneration is payable to enable the payment to any worker to be ascertained. Before submitting any proposals to the Minister of Labour the Central Wages Board shall transmit a draft of these proposals to all the area boards affected thereby. The Minister of Labour is empowered to make an order giving effect to any proposals submitted to him by the Central Board. The Central Board, and each of the area boards, are also empowered to make or assist in making arrangements for the settlement of disputes or differences arising between road haulage workers and their employers and to promote the voluntary organisation of such employers and workers.

Railways Excluded

The Bill excludes work for which a minimum rate of wages has been fixed by or under any other enactment, and work of persons in the employment of any railway company constituted under the Railways Act, 1921, whose remuneration falls to be determined by machinery established by agreement between such companies and the railway trade unions.

Ancillary Users

Part II of the Bill deals with employment in connection with motor vehicles for which "C" licences (those of ancillary users) are required. A worker under Part II who considers that his remuneration is unfair, or his trade union, or a trade union representing a substantial number of road haulage workers, may make a formal complaint to the Minister, who shall refer the matter to the employer for consideration. If the complaint is not frivolous or vexatious and is not withdrawn after the Minister has made representations to the employer, the Minister is required to refer the complaint to the Industrial Court for settlement, unless the complaint concerns an employer belonging to an organisation which is a party to joint arrangements of a certain kind for settling disputes. In that case the Minister is required to refer the complaint for settlement in accordance with such arrangements. The immediate result of these provisions is that while "A" and "B" drivers will have their wages fixed immediately the matter has been considered by the Central Board, the "C" vehicle driver will not have his wage fixed unless he, or his union, makes an application to the Minister in regard to a particular employer. It is probable, however, that only one such application in each area will be required to determine the wages for that district.

Remuneration is not to be deemed to be unfair if it is equivalent to the statutory remuneration payable for corresponding work under Part I, or if it is in accordance with a trade union agreement with the employer or his organisation, or is equivalent to the remuneration payable for corresponding work by other similar employers in the district under a trade union agreement or under a decision of the Industrial Court. If, in any case referred to it, the Industrial Court finds that the remuneration was unfair, the Court is empowered to fix the remuneration payable having regard not only to the above considerations, but also to any collective agreements concerning the remuneration of similar workers in comparable trades or industries, and to the general level of remuneration of other workers in the trade in which the employer concerned is engaged.

Enforcement

As regards the important question of enforcement, Part III of the Bill provides that, in effect, payment of wages according to the statutory scale will become a condition of every carrier's licence. Employers will be required to keep such records as are necessary to show that the provisions of the Bill in this respect are being complied with. It is proposed that the Minister shall appoint officers, with very wide powers, to examine the records of wages paid, and, in the event of any irregularity being discovered, the offenders will be open to substantial fines or, in certain circumstances, imprisonment. The administrative cost of the scheme is estimated at £25,000 per annum, and it is proposed to take account of this cost in fixing the future fees for licences for goods vehicles.

A Survey of the Road Transport Position on H.E.H. the Nizam's State Railway

Thanks to unified control over railways and roads in the Nizam's dominions, his Government has been able to co-ordinate transport as nowhere else in India, and the railway administration has led the way in developing road services

By A. J. PRAGNELL, Deputy Agent (Commercial)

A LANDMARK in the recent history of H.E.H. the Nizam's State Railway is the co-ordination of rail and road transport. The State of Hyderabad has given a definite lead in India as a result of the comprehensive scheme for the co-ordination of rail and road transport which has been introduced by the Nizam's Government. The question of co-ordinating the road and rail services in his dominions, and of controlling the issue of monopolies and permits to private motor agencies and individual owners, assumed importance when the railway became the property of the State in 1930. In common with the other railways in India and elsewhere, the Nizam's State Railway had to face the effects of competition from the rapid growth of road transport services. With the exception of two or three bus companies which operated in certain districts under monopolies granted to them by the Government, the remaining motor services in the State were worked by a number of ever-changing private individuals with little financial status or experience, most of whom were engaged in cut-throat competition with one another and in some cases directly with the railway. It was soon realised that with such unlimited and uncontrolled competition, the quality of the service to the public was likely to deteriorate, and that a surfeit of road transport would lead to a considerable increase in the cost of maintenance of the roads.

First Railway-owned Bus Services

After very careful consideration it was decided that, as a first step, the Railway Department should start trial services of its own over certain roads, with a monopoly over such routes, and with complete freedom to fix its own rates and fares; and that if the experiment proved a success, the railway should ultimately take over the entire public road transport within the State. A scheme was accordingly prepared costing approximately Rs. 4½ lakhs and sanctioned by the Government. It included proposals for working (*a*) monopoly services on about 400 miles of country district roads; and (*b*) suburban services in Hyderabad and Secunderabad running in competition with private services.

The services were inaugurated on June 15, 1932, with a fleet of 27 buses. The well-organised and comfortable services run by the railway at fixed fares and working to regular timetables, in place of the uncomfortable and irregular private services, were quite naturally welcomed by the public, and within a short time their popularity increased so much that the buses intended for the extended district road services had to be diverted for use on the services already opened.

Encouraged by the success of these services, and in compliance with a persistent demand from the districts for the opening of additional services, considerable extensions were made during the next three years and at the end of March, 1936, the railway had a fleet of 118 passenger buses operating over 1,364 route miles.

The services that had so far been displaced were those of private individuals who had been working on annual permits and had not therefore created any vested interests. Immediately on being displaced, most of the bus owners either came to Hyderabad or Secunderabad and obtained permits to ply in the suburban area, or converted their buses into lorries for the transport of goods, with the result that, in addition to intensive passenger bus competition in the suburban area, a new phase of competition came into existence diverting to the road a large amount of goods traffic which had previously been conveyed by rail.

1936-37 Developments

Two important monopoly concessions held by private concerns operating on about 2,400 miles of district roads were due to expire during the year 1936. Experience of the last four years had clearly shown that the State Railway administration was in a position to operate efficient road transport services at low fares and make a reasonable profit, in accordance with the policy already accepted, the Government decided not to extend the period of these monopolies, but to hand over the services worked by the monopolies to the railway, together with those on certain other roads linking up with them. It was agreed that all the equipment should be taken over at a reasonable valuation, and that, as far as possible, the displaced staff should be employed by the railway.

With these extensions, the total length of roads operated by the railway road transport service increased at the end of March, 1937, to 3,977 route-miles or over three-fourths of the total length of main roads in the dominions, and the total fleet increased to 318 motor vehicles.

Hyderabad State Motor Vehicle Rules

It was also deemed necessary, in order to safeguard effectually the interests of the railway road transport services over their monopoly routes, and to prevent uneconomic and wasteful competition in areas worked by private services, that suitable rules should be framed under the Hyderabad Motor Vehicles Act and Government sanction obtained to the enforcement of these rules. A committee consisting of representatives of the Railway, Police, Revenue and Public Works Departments examined the provisions that were required to be made and prepared rules which became law on October 6, 1936.

In framing these rules the main object kept in view was that ultimately the railway should have the monopoly of all public bus services in the State. For this purpose, roads were divided into two classes, namely, scheduled and non-scheduled. The scheduled roads are those reserved for the railway-owned services, and consist of most of the main and important roads, aggregating 4,620 miles, of which 4,000 miles are already under railway monopoly, and 263 miles are worked under a monopoly by a private operator. On the remaining 357 miles, private buses are at present allowed to operate under permits issued by the Secretary to Government, Revenue Department. The permits specify the exact routes on which the buses should ply, and the number of buses allowed to operate on each route is restricted.

The non-scheduled roads consist of 209 miles of unim-

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portant roads. Permits for running buses and lorries over these roads are issued by the district taluqdars with due regard to the needs of the area to be served. These non-scheduled roads may at any time be re-classified as scheduled at the discretion of the Government, after which permits to ply on them may only be granted by the Secretary, Revenue Department. All new roads will also be scheduled, and the railway will have the first refusal to operate over them.

Suburban Bus Services

So far as the suburban roads are concerned, the monopoly will be secured by a process of gradual elimination. No permits for new bus services are to be issued and for those private services that are already in operation, permits will be granted only as long as they come up to the fairly high standard of comfort and efficiency required for the capital city of the State; in any case no permits will be given for buses which are over six years of age. Thus complete monopoly will be secured in the course of six years. Cart tracks are not included in the category of scheduled or non-scheduled roads, and permits for running bus services thereon may be granted only if, from the railway point of view, there is no objection to such services being allowed.

As a result of this scheme of co-ordinated transport administration, private profits are being diverted to the State for the benefit of the people as a whole. Standardisation, more regular services, and lower rates are replacing the diversity and irregularity which characterised the private services. The basis of charge by the State Railway buses is 6 pies (roughly ½d.) in Osmania Sicca currency per passenger-mile.

Standard Bus Fares Higher than Railway

The adjustment of fares on particular railway bus routes, by the adoption by the railway of a standard fare per passenger-mile, has had the effect of attracting traffic to the railway for the reason that when the buses on these particular routes (which were actually parallel and directly competitive with the railway) were operated by private owners, the fares competed with the rail rates. The standard fare per passenger-mile now charged on the State Railway buses is on a higher basis than the rail fare and considerable traffic has, therefore, reverted to the railway. The State Railway has, in consequence, reduced considerably the number of trips run by its buses on these specific routes.

The travelling public of Hyderabad State is, however, benefiting considerably by the introduction of the State Railway buses and by the adoption of the standard fare. This will be appreciated when one bears in mind the high fares previously charged on many of the routes operated by private owners. This emphasises the fact that a system of charges by which the more profitable routes subsidise the less profitable, with its very material advantages to the public, is possible only when there is actual or virtual monopoly. Transport in this involved age has become such a necessary part of the social organisation that the effects of competition, disorganisation and instability react on a very large section of the public. The service must be well organised, speedy, safe and reasonably cheap, and this cannot be attained in the face of competition where the owners or shareholders could not be assured of a reasonable return on the money invested, and where the satisfactory operation of the service is lost sight of in consequence of the sole desire to secure traffic.

That public opinion is veering towards a favourable view of monopolies in transport is apparent from the fact that, in recent years, the demand has arisen throughout the world for the control of competitive transport, and the firm establishment of those monopolies which are now in existence. The public has realised that the old order has changed radically and that economic forces, as well as social necessity, demand that unified control of transport be attained in some way or another. This demand has become so strong and so general that the legislatures of practically every country in the world have been obliged to introduce laws to control transport.

Country Goods Road Services to Remain in Private Hands

Regarding the transport of goods by road, the policy of H.E.H. the Nizam's Government is " to conserve as much carting as possible to the village cart-men." In effect it is to encourage private haulage feeding the railway. All other goods transport by road is to be regulated in the interest of the railway. As a rule permits for regular lorry services for carrying goods for hire are not to be issued except in the case of large towns, where permits for the carriage of goods on hire may be given within a radius of 25 miles. No restrictions are, however, imposed on traders' own lorries, *i.e.*, vehicles owned and used by traders in connection with their own business.

Out-Agencies and Collection and Delivery

In December, 1934, the railway opened an experimental out-agency at Bhaisa for through booking of goods and parcels by combined road and rail routes, and, following on the experience gained by the working of this out-agency, additional out-agencies, each serving a separate railway station, have been opened during the past year providing road transport of goods over 380 route-miles of road feeding the State Railway.

One of the most outstanding recent developments on this railway was the introduction on March 1, 1937, of goods collection and delivery services at Hyderabad, Secunderabad, and Warangal. Under these arrangements, goods are conveyed to and from the railway station, in railway lorries, from and to merchants' premises, cartage areas having been defined at each place. This door-to-door scheme embodies one flat cartage rate irrespective of the class of traffic, and, although the arrangement is only in its infancy, it is already well patronised and popular. Further proposals for the introduction of additional out-agencies and collection and delivery services are being formulated, it being considered that these cartage services, in addition to combating road competition and attracting additional traffic to the railway, will themselves in course of time provide a further source of revenue to the State.

Co-ordination of Services

That control by the State Railway administration of road transport services is essential in order to secure the largest measure of co-ordination with the railway services is further exemplified by various schemes of road and rail co-ordination recently introduced by the railway. Many of the train services in the State have recently been accelerated and the railway bus services are being co-ordinated with these improved services, various alterations being made in the road timetables to make the bus trips fit in with the trains. Where the railway road services are available and are meeting the needs of the public, arrangements are being made to avoid train stoppages at intermediate unimportant stations. The railway buses feed the trains at specific points, and the number of trains with which connections are made by railway buses every day now totals 238.

Road-cum-Rail Excursions and Co-ordination in Road Building

Combined road and rail excursions to various places of historical and archæological interest in Hyderabad State

were inaugurated in the latter part of last year and are proving very popular amongst the travelling public. To augment existing services on various routes, and to cater for an expansion in the near future of the administration's policy of running combined rail and road excursions to many places of interest in the State, 20 additional new buses are being placed in service.

Another interesting feature in the scheme of co-ordination in Hyderabad is the close co-operation established between the Railway, the Public Works, and the Revenue Departments, in regard to all schemes of road construction. This co-operation ensures a planned scheme of transport and development of roads as feeders to the railway. The new rates of taxation on motor vehicles provide an increasing revenue which the Nizam's Government has decided shall be credited in full to a special Road Fund to be managed by the Road Board.

It will thus be seen that the aim of the Government and the railway is to provide a comprehensive and economic transport service, and everything possible is being done to make this service as attractive as possible so that the travelling and trading public may make full use of the facilities afforded. The co-ordination which is being effected in Hyderabad State, particularly between the road and rail communications, is eliminating wasteful competition, providing cheaper and better means of transport, and opening up hitherto inaccessible regions to trade and traffic. The unified control will ensure that every area and every industry is being or will be served by the means of transport best suited to its needs.

Rapid Concrete Road Making, L.N.E.R.

Concrete mixer with separate water tank mounted on lorry for supplying ready mixed concrete, as used at King's Cross goods depot, L.N.E.R.

A NEW method of cart roadway construction has recently been tried at King's Cross depôt where the constant occupation night and day of No. 1 inwards shed necessitated the minimum interruption of a roadway between two sidings which was in need of repair. For permanence it was decided to use reinforced concrete. The total area so paved was 350 sq. yd. and the thickness of the road was 7 in., the quantity of concrete required thus being about 70 cu. yd. To expedite work, ready mixed concrete was obtained from the Express Concrete Supply Company which delivered the material direct by road. For this purpose a lorry on which is mounted a concrete mixer containing dry concrete is used, and immediately before the concrete is poured the requisite quantity of water is admitted from a separate tank to the mixing drum, which is then started. Each lorry provides 2½ cu. yd. of concrete, and it can be arranged that lorries arrive immediately after one another or at any pre-determined interval. The results obtained in this trial indicated that with six men it would be possible to lay similar concrete roadways at the rate of about 150 yd. a day, or if the number of men were increased a proportionately greater area could be laid depending, upon the rate at which the ready mixed concrete could be supplied.

SLIDE RULE FOR AUTOMOBILE BRAKE TESTING.—Morgan, Crossley & Co. Ltd., the maker of Tenoid brake and clutch linings, recently sent us a useful slide rule to obviate the need for arithmetical calculation in the deduction of results from road tests on the braking of motor vehicles. From such easily measured quantities as the initial speed, and either the stopping time or stopping distance, the brake efficiency can quickly be obtained by manipulating a slide and a cursor. If the vehicle weight is known, a further manipulation will give the retarding force. The inverse operations of determining stopping times and distances, knowing the initial speed and the brake efficiency, are as easily performed. The scales of the rule are on card, stiffened and protected frem dirt by a celluloid covering. Individual rules are obtainable, complete with instructions, for 7s. 6d. from the above-mentioned firm, at Tenoid works, Hulme Hall Lane, Manchester 10.

XUM

A New Level Crossing Indicator

For occupation and other crossings, to give warning of the approach of trains

MISHAPS and narrow escapes at occupation and other types of level crossing during recent years have emphasised the advantage of giving an efficient direct warning to persons wishing to cross the line, leaving them in no doubt whether a train is or is not coming. Such an appliance needs to be simple and robust, and to give its warning in a form readily understood by anyone without knowledge of signalling principles. The increasing use now being made of some crossings, such as those leading to factories and building sites, makes it more desirable than formerly to diminish, if not to eliminate, the chance of a vehicle being driven across at the wrong time, with the ever-present liability, now that heavily laden lorries are so common, of its accidentally breaking down on the line.

To meet a demand for an improved warning device, the indicator shown in the accompanying illustrations has been designed to requirements by the W. R. Sykes Interlocking Signal Co. Ltd., Clapham, London, S.W.4. The two indications " line clear " (the normal one) and " train coming " are painted in bold letters on green and red screens, and appear through a window measuring 2 ft. × 8 in. These screens are operated by a large " Z " electromagnet fitted with pulling and hold-clear windings, which can be arranged for primary battery or power supply feed, a rectifier being provided for use with a.c. mains. A heavy fall-away effect is given, and, if necessary, repeating contacts can be provided for one or both indications, to work into the nearest signal box or station. The case is of heavy sheet steel, welded and galvanised, with screw fasteners, similar to the construction adopted for the firm's terminal test and apparatus cases. The standard arrangement recommended is to use a tubular post, mounting the indicator on top on a flange casting, but fixings for other types of posts are readily adaptable. The indications are floodlit at night by a lamp carried in an outdoor fitting.

It is the practice at some crossings with this apparatus to provide an emergency hand push-key—protected if necessary by a glass mask like a fire alarm—to be depressed by any person whose vehicle becomes stalled on the crossing, setting an alarm sounding in the nearest signal box or place where someone is on duty who can stop rail traffic. Automatic signals could, of course, be controlled by this means. A notice board instructs persons not to cross unless the indicator shows " line clear " and to depress the hand key if their vehicle breaks down on the line. Misuse of this facility incurs risk of a penalty. The indications can be controlled by track circuit, rail contacts, the operation of block instruments, or directly by the intervention of a signalman, as may be most convenient. An audible warning can also be combined with the mechanism either to sound all the time the " train coming " indication is showing, or to draw attention momentarily to its appearance. Continuously sounding warnings are seldom found desirable, however, constituting a considerable nuisance in many localities.

Although intended primarily for level crossings, there are other places where such an indicator might be used to advantage, for example, to warn staff against crossing the track at points where the view of approaching trains is restricted.

Views of new level crossing indicator showing (left) normal indication, and (right) when train approaching

Road Services between Turkey and Iran

Turkish endeavour to recover transit traffic

AFTER the war, traffic on the old caravan route between Trebizond (on the Black Sea) and Tabriz (in Iran) on the way to Teheran, declined to about one-eighth of its former volume, largely on account of the construction of a railway in Russia parallel to the frontier. This railway effected communication with the larger system to the west and with Europe generally, although these facilities were not used extensively owing partly to the numerous customs boundaries passed, and partly to mistrust in the reliability of the Soviet train services.

The cordial relations existing between the Turkish and Iranian governments encouraged the former to try to bring the transit traffic back to its territory by constructing a good road from Trebizond to the Iranian frontier *via* Erzeroum; Iran made considerable improvements to its own roads also, and was to establish an efficient bus and lorry service to Tabriz, a distance of 670 km. (416 miles), the shortest way from Northern Iran to the open sea and the route adopted by the Shah when making a State visit to Angora a few years ago.

The new road has a 5-m. (16½-ft.) vehicular way, with a 1-m. (3-ft. 3⅜-in.) path on each side for pedestrians and animals, and has cost about 3½ million Turkish pounds. Great care has been taken to provide efficient maintenance facilities, proper houses being built for the men concerned, and snow shields and snow ploughs are provided in the high regions. The working is in Government hands through a specially-established organisation called the Devlet Otomobil ve Kamion Servisleri Trabzon-Iran Transit (Trebizond to Iran State Bus and Lorry Association for Transit Traffic); this concern is a subsidiary of the Turkish State Railways. The Büssing works in Brunswick supplied eight 13-seater motorbuses and 24 two-*tonne* lorries, and the service was opened on May 15, 1937. A regular timetable is followed, making connection at Trebizond with the steamers of the German Levant line which maintain a weekly service from Hamburg; the passage takes three to four weeks.

The journey time from Trebizond to Tabriz is two to three days in summer, and a day longer in winter; the old caravans took 50 days. Heavy-oil diesel motors are used, as this fuel is much cheaper than petrol in this locality. The use of lorries greatly simplifies the customs formalities for transit goods, which can be sealed up in quantity. Much time was wasted formerly when every package was liable to individual inspection.

The new services have already attracted encouraging patronage and led to the development of private motor traffic, contributing to a noticeable improvement in transport facilities in Anatolia. The camel caravan will, however, retain importance for some time as a feeder to the new road, as it can be used over poor country, and some time must elapse before enough branch routes are built able to accommodate motor vehicles. Through rail communication is at present lacking in the eastern districts of Asiatic Turkey.

The Warrenpoint & Rostrevor Tramway

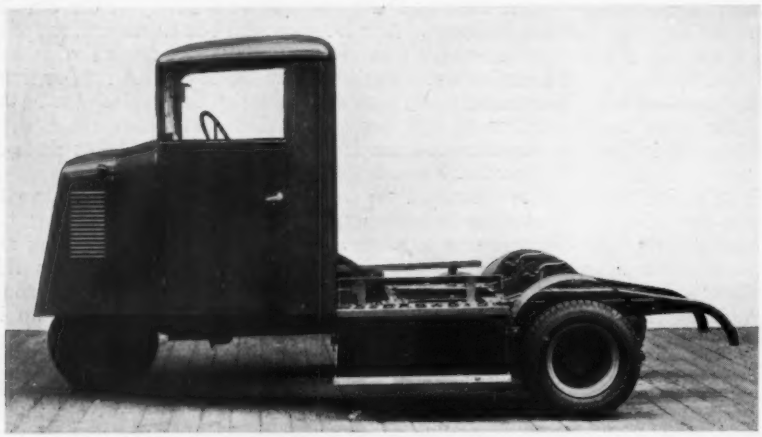
A correspondent recently asked us for information regarding the horse tramway between Warrenpoint and Rostrevor in County Down, Ireland, which provided the final rail link between the famous Rostrevor hotel of the Great Northern Railway (Ireland) and the main railway system. To amplify the somewhat meagre information in our files we sought the assistance of Mr. J. B. Stephens, the General Manager of the G.N.R. (I), and through his researches were enabled to give our correspondent a full reply. As the information thus collected may prove of some general interest, we are setting out the main features.

It appears that the original intention of the Newry, Warrenpoint & Rostrevor Railway Company, which was incorporated by an Act of July 27, 1846, was to connect the points indicated by its title, but that only the section from Newry to Warrenpoint was actually constructed; this was opened on May 28, 1849. Eventually local interests decided that a tramway would be of considerable local advantage, and might be built quite cheaply. They therefore secured an Order in Council dated September 6, 1875, granted under the Tramways (Ireland) Act, 1860, and the Tramways (Ireland) Amendment Act, 1861. This incorporated the Warrenpoint & Rostrevor Tramways Company, with an authorised capital of £5,500 in £10 shares, and power to build a 3-ft. gauge single-track line from Warrenpoint station yard to Rostrevor Square. It was specified that the tramway might be used for conveying passengers, parcels, animals, and goods, but that the company should not be bound to carry any traffic other than passenger.

A modern unit of the Northern Ireland Road Transport Board's fleet outside the Great Northern Railway Hotel, Rostrevor. Remains of the old tramway may be seen

The line was 3¼ miles in length, and the rolling stock was made up of two covered trams, 10 open trams, and one cart, all horse drawn. The bodywork of the tramcars would appear to have been carried out by the Starbuck Carriage & Wagon Company, Birkenhead, whilst the wheels, &c., were manufactured by Hadfields of Sheffield. The precise date the line was opened apparently cannot now be traced, but Mr. Stephens

informs us that it was functioning in 1877. The company issued all its ordinary shares and £1,057 in debenture stock. The last dividend paid was at the rate of 2½ per cent. for the year 1908. The line was closed on February 13, 1915, when its financial position had become so acute that the company could not carry on. Clause 30 of the Order in Council provided that if the tramway remained unused for six calendar months the company should forfeit the rights and privileges granted by the Order, and also its title to the tramway. Accordingly, during 1917 and 1918, owing to the dangerous condition of the track, the Down County Council lifted the rails and disposed of them by public auction.



Left: A 2-3 ton three-wheeled battery-electric mechanical horse built by Tilling-Stevens Limited

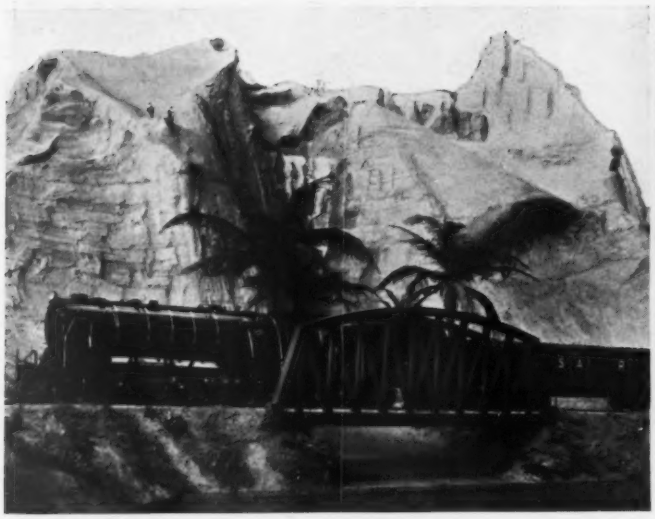
Below: The five Austin motorcars used by the representatives of the London East, London Central, London West, Southern, and Western Divisions of the Southern Railway to improve "Southern Sales"

Right: A diesel-engined A.E.C. Regent in the service of the Trent Motor Traction Co. Ltd. at Derby. Last year this company took delivery of 30 Regent double-deckers and 20 Regal single-deckers, all diesel-engined. Previously, the fleet consisted almost entirely of S.O.S. chassis built by the associated company, the Birmingham & Midland Motor Omnibus Co. Ltd. A single-decker of this type may also be seen at the bus stop

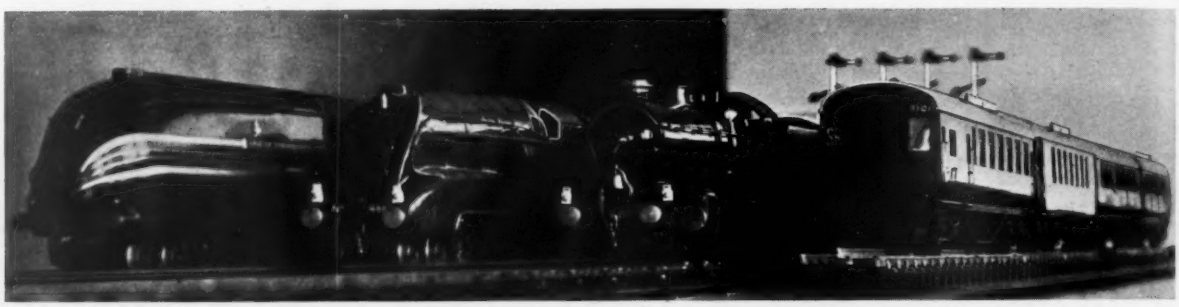
Left : The King and Queen leaving the United Kingdom pavilion during their tour of the exhibition
Right : The British railways pavilion

General view of the exhibition. The British railways pavilion is near the foot of the cascade in the centre

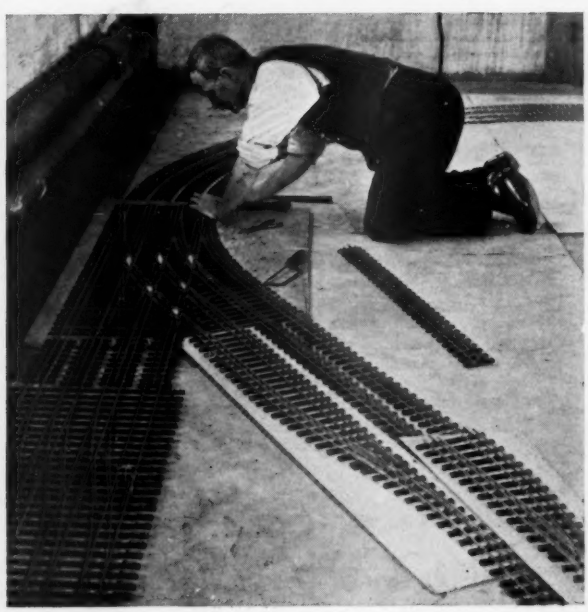
THE EMPIRE EXHIBITION AT GLASGOW



Two views of the South African Railways model built by Twining Models Limited



The four British main-line railways represented in Bassett-Lowke models



Model railway equipment being built in the Bassett-Lowke workshops

RAILWAY MODELS AT THE GLASGOW EXHIBITION

RAILWAY NEWS SECTION

PERSONAL

Mr. J. W. Davidson, C.M.G., M.Inst.T., has retired from the office of Commissioner for Railways, Queensland, after a tenure of over nineteen years. He has now entered upon a period of fifteen months' leave, during which, accompanied by Mrs. Davidson, he is visiting the United Kingdom, and will spend some time in Glasgow, his home town. Mr. Davidson has had a most distinguished career in the Queensland railway service, which he has administered, through many difficult times, with outstanding ability. During his long term of office as Commissioner he has always been held in the highest esteem by the officers and staff, whose best wishes go to him in his retirement. Mr. Davidson entered the Queensland Railways as a junior clerk in January, 1890, when the mileage of line open for traffic was 2,205 and the annual revenue £850,000, compared with the 6,566 miles of line which are today yielding an annual revenue of approximately £7,000,000. Having occupied several clerical positions and acted for a brief period as Stationmaster, Mr. Davidson rose to the position of Traffic Superintendent, from which, in 1918, he was appointed to the Commissionership. During his occupancy of that office, 1,000 miles of new line were opened for traffic and the annual revenue increased by £3,000,000. Mr. Davidson will be long remembered by his officers and staff for the highly practical manner in which he handled all problems with which he was confronted, for the high ideal of service which he at all times exemplified, and for his humane and sympathetic treatment of all matters concerning their welfare.

Mr. J. W. Davidson, C.M.G.
Commissioner for Railways, Queensland, 1918–38

Mr. C. A. Murton
Appointed Commissioner for Railways, Queensland

Mr. C. A. Murton, who has succeeded Mr. J. W. Davidson as Commissioner for Railways, Queensland, has for almost thirteen years filled the position of Secretary to the Commissioner, and has on many occasions acted as Commissioner during the latter's temporary absence. Mr. Murton, who is a Fellow of the Commonwealth Institute of Accountants and an Associate of the Federal Institute of Accountants, joined the railway service in November, 1889, as a junior clerk, and brings to his new office a wealth of experience. He began his railway work at a station where his father was stationmaster, and became an expert telegraphist and a booking and goods clerk. After service in many parts of the State, from the far north to the southern border, he was transferred to the Railway Audit Office, and later became Chief Accountant. For a time he was Assistant Secretary to the Commissioner, and received his permanent appointment as Secretary in 1925. Mr. Murton's long experience in an administrative capacity, and his intimate knowledge of traffic work, admirably fit him for the eminent position which he now holds, and in which he enjoys the high esteem and loyalty of his officers and staff. He is succeeded as Secretary to the Commissioner by Mr. P. R. T. Wills.

Mr. Waldemar Hoff, who was appointed General Manager of the Norwegian State Railways by a Royal Decree of April 25, succeeded Mr. Heiberg in that position on May 1. His appointment is to run for six years from that date. Mr. Hoff has been on the permanent staff of the Norwegian State

Railways for 31 years, holding various engineering positions until his appointment as Traffic Manager of the Drammen District five years ago. This district comprises the portion of the State Railways system serving the country west of the Oslo Fjord, and radiating from the Oslo West station. Under Mr. Hoff's control, train operating in this area was raised to a new level of smartness on services of all kinds. Mr. Hoff, while at Drammen, was also an advocate of the introduction in Norway of Lyntog high-speed railcar services on the Danish pattern, and brought his name before the general public by publishing suggested schedules for their operation on the routes from Oslo to Trondheim, Bergen, and Stavanger (see the *Diesel Railway Traction Supplement* to THE RAILWAY GAZETTE of October 1, 1937). He has foreshadowed his policy as General Manager in an interview with the *Jernbanemanden* (the official organ of the Norwegian Railwaymen's Union), saying that the main line of his working programme will be "the positive line." He has prepared plans for a reorganised system of administration, and on the operating side will pursue modernisation of working by electrification where suitable, and, elsewhere, by the extended use of high-speed railcars.

Mr. Waldemar Hoff

Appointed General Manager, Norwegian State Railways

Mr. G. L. Drury, whose retirement on April 9 from the post of Assistant Electrical Engineer, North-Eastern Area, L.N.E.R., was recorded in our issue of April 22, was born and educated in Dublin. He joined the Dublin United Tramways Company in 1898, at the time of the conversion of the system for electrical working. In 1904 he obtained an appointment with the former North Eastern Railway at York, in charge of the electrical equipment of the rolling stock for the Tynemouth branch; and later in the same year was appointed Car Shed Superintendent, N.E.R. at Walker Gate, Newcastle-on-Tyne, in charge of the electric rolling stock and motormen. Under the late Sir Vincent Raven, Mr. Drury was responsible for the electrical equipment and putting into service of the 1,500-volt electric locomotives on the Shildon—Newport line. He also represented the N.E.R. on several British Electrical Standards Association committees, including that on Traction Motors. During the war he was on loan to the Admiralty for special work. In 1919 Mr. Drury was appointed Carriage & Wagon Works Manager at Walker Gate for the Northern Division of the N.E.R., and after the railway amalgamation he was in 1924 appointed Assistant Electrical Engineer, N.E. Area, L.N.E.R., with headquarters at Darlington, and was in charge of traction, power and lighting in the N.E. area. In recent years his work has included the supervision of the new rolling stock for the North Tyneside lines, and the rolling stock and substations for the South Shields branch, open for electrical services on March 14 this year. Mr. Drury is a Member of the Institution of Electrical Engineers, and an Associate Member of the Institution of Mechanical Engineers.

Mr. H. W. Green, whose appointment to succeed Mr. Drury as Assistant Electrical Engineer, North-Eastern Area, L.N.E.R., was recorded in our issue of April 22, entered the service of the former North Eastern Railway

Photo] [Lafayette

Mr. G. L. Drury

Assistant Electrical Engineer, North-Eastern Area, L.N.E.R., 1924-38

Mr. H. W. Green

Appointed Assistant Electrical Engineer, North-Eastern Area, L.N.E.R.

Mr. Ronald Clarke

Appointed District Goods & Passenger Manager, Carlisle, L.M.S.R.

Company at the locomotive works, York, as an apprentice, and completed his apprenticeship in the Electrical Department. Appointed a Draughtsman, he was transferred to Gateshead, later becoming District Electrical Inspector in charge of the Darlington District. Mr. Green served throughout the war, and was in France from April, 1915, to May, 1919, retiring with the rank of Captain (R.E.). In December, 1920, he was appointed Electric Car Sheds Assistant to the Works Manager at Walker Gate, and in 1923, on grouping, became Superintendent of the new electric car sheds and repair shops at South Gosforth. In April, 1933, on the reorganisation of the Locomotive Running Superintendent's Department, he was appointed District Locomotive Sheds Superintendent for the combined Middlesbrough and West Hartlepool Districts. Mr. Green was appointed District Electrical Engineer, Newcastle, in May, 1934, which post he has now vacated to take up that of Assistant Electrical Engineer, North-Eastern Area. He is an Associate member of the Institution of Electrical Engineers.

Mr. Ronald Clarke, whose portrait we reproduce on page 900, has been appointed District Goods & Passenger Manager, Carlisle, L.M.S.R. Mr. Clarke's appointment, announced in our issue of April 8, takes effect from May 1. For the past eight years he has occupied the position of Goods Superintendent, Buchanan Street station, Glasgow, L.M.S.R.

THE NEW CHAIRMAN OF THE B.A.P.

Mr. James Alfred Goudge, C.B.E., who has been elected Chairman of the Buenos Ayres & Pacific, the Argentine Great Western, and the Villa Maria & Rufino Railway Companies, in succession to the late Viscount St. Davids, has had a long connection with the Buenos Ayres & Pacific and its allied undertakings. After an early training on the London & North Western Railway in the General Manager's Department at Euston, his first direct connection with these railways was established in 1885, as accountant in London. Lord St. Davids (then Mr. J. W. Phillips, M.P.) became Chairman of the Pacific Company in 1899. In 1900 Mr. Goudge was appointed Secretary of the Pacific and the Villa Maria & Rufino Companies, and also of the Bahia Blanca & North Western Railway Company. In furtherance of the forward policy pursued by the Pacific board, considerable reorganisation was deemed necessary and Mr. Goudge was selected to assist in carrying out this work in Argentina. For this purpose he was in 1900 appointed Acting General Manager of the Pacific Company in Buenos Aires, and a member of its local board in that city, as well as a member of the local board of the Bahia Blanca Company, and a legal representative of the Villa Maria Company. One of the first steps in the forward policy was the leasing of the Bahia Blanca line to the Pacific Company for a period of 20 years from July 1, 1904. Through communication between the two systems was established during the financial year 1906-7 by the opening of the Nueva Roma—Huinca Renanco line of 292 miles, and other connections were constructed. The next important step was the arrangement for the working from July 1, 1907, of the Argentine Great Western Railway system by the Pacific Company, under which additional lines and improved connections between the two systems have been constructed. By 1907 Mr. Goudge had become General Manager of both these railways. When, early in 1913, the late Mr. Guy Calthrop took over the General Managership of the two railways, Mr. Goudge became Joint Managing Director, with Mr. F. O. Smithers, of the Buenos Ayres & Pacific Railway Company, and was also elected to the board of the Bahia Blanca & North Western Railway Company. The working of the Bahia Blanca line was taken over by the Buenos Ayres Great Southern Railway Company as from November, 1924, but Mr. Goudge has remained on the board of the Bahia Blanca Company. He was Managing Director of the Pacific Company until his recent election as Chairman. To the board of the Villa Maria & Rufino Railway Company he was elected in 1915. Mr. Goudge acquired from time to time interests in other railways in South America, being elected in 1915 to the board of the Arica & Tacna Railway Company, and in 1922, to the boards of the La Guaira & Caracas Railway Company, and of the Dorada Railway Company and Dorada Railway (Ropeway Extension) Limited. In 1925 he became Chairman of the Bolivar Railway Company. Mr. Goudge was created in 1920 a C.B.E. for work in connection with the welfare of ex-officers. The following is a list of railway directorships at present held by Mr. Goudge:—

Argentine Great Western Railway Co. Ltd. (Chairman).
Argentine Transandine Railway Co. Ltd. (Chairman).
Arica & Tacna Railway Company (Chairman and Managing Director).
Bahia Blanca & North Western Railway Co. Ltd. (Director).
Bolivar Railway Co. Ltd. (Chairman).
Buenos Ayres & Pacific Railway Co. Ltd. (Chairman).
Dorada Railway Co. Ltd. (Chairman).
Dorada Railway (Ropeway Extension) Limited (Chairman).
La Guaira & Caracas Railway Co. Ltd. (Chairman).
Ottoman Railway Holding Co. Ltd. (Director).
Puerto Cabello & Valencia Railway Co. Ltd. (Chairman).
Salvador Railway Co. Ltd. (Chairman).
Villa Maria & Rufino Railway Co. Ltd. (Chairman).

From *The London Gazette* of April 26: Royal Engineers, Transportation: Lt. L. S. Sanson from Supplementary Reserve of Officers, R.E. (Transportation) to be Lieutenant, retaining his present seniority (April 27).

COLONIAL OFFICE APPOINTMENTS

The Crown Agents for the Colonies have recently made the following first class appointments:—

Mr. C. G. Harrison, to be Assistant Chief Mechanical Engineer, Federated Malay States Railways.

Mr. G. F. Fisher, to be Engineer-in-charge, Lake Steamers, Kenya & Uganda Railways and Harbours.

Mr. Charles S. Lake, Technical Editor of THE RAILWAY GAZETTE, has been transferred from Associate Member to Member of the Institution of Mechanical Engineers.

We regret to record the death on April 16 of Mr. John Westall, a Director of Kendall & Gent (1920) Limited, maker of machine tools, of Gorton, Manchester. Mr. Westall had been actively engaged in the business for over 40 years.

Brig.-General Sir G. D. Rhodes, C.B.E., D.S.O., R.E.(Ret.), General Manager of the Kenya and Uganda Railways and Harbours, has not yet arrived in this country on leave, as announced in last week's issue. Sir Godfrey left Kenya on April 19 on leave, but is proceeding *via* the East to Canada, where he will stay some time, arriving here in July.

OVERSEAS OFFICERS HOME ON LEAVE

Mr. R. E. Robins, General Manager, Tanganyika Railways.

Mr. W. B. Dawson, Chief of Transportation, Rhodesia Railways (due May 16).

Mr. M. A. Crane, Research Officer, Nigerian Railway.

Mr. W. A. Smyth, Chief Mechanical Engineer, Ceylon Government Railway.

RAILWAY STUDENTS' ASSOCIATION

The annual general meeting of the Railway Students' Association was held at 6 p.m. at the London School of Economics on Thursday, April 28. Mr. L. W. Orchard, Chairman of Committee, presided.

Mr. E. J. H. Lemon, O.B.E., Vice-President, London Midland & Scottish Railway was unanimously elected to the office of President of the Association for session 1938/9 and all the remaining vice-presidents holding office were re-elected.

Mr. H. Bailey and Mr. S. E. Bellamy, L.N.E.R., were re-elected Hon. Treasurer and Joint Hon. Secretary respectively. Owing to business reasons, Mr. A. F. Wallis, Southern Railway, intimated his wish not to seek re-election to the Joint Secretaryship which he had held since November 1929. Mr. C. A. Nisbet, Great Western Railway, was elected in his stead.

The Empire Exhibition at Glasgow

(*See also illustrations on pages* 897 *and* 898)

The King accompanied by the Queen opened the Empire Exhibition at Glasgow last Tuesday at a ceremony in Ibrox stadium, near the Exhibition grounds at Bellahouston Park. When Their Majesties arrived at Glasgow Central station at 10 a.m., after having travelled the previous night from Euston and spending some hours in the royal train in a siding outside the city, they were met by the Secretary for Scotland, Sir Josiah Stamp, and others. The exhibition at Glasgow is a worthy successor to the 1924-5 Empire Exhibition at Wembley. It is more attractively laid out and has a more cheerful aspect, due probably to its ideal setting in one of Glasgow's public parks. Colour has been used discriminately and there is no clashing in the design of the various buildings. Apart from the purely commercial features, the potentialities and activities of the various countries comprising the British Empire, their trade activities, their products, and general physical characteristics are emphasised. The chief industries of Great Britain have separate pavilions, such as the Palace of Engineering, two Palaces of Industry, Palace of Travel, Transport & Industry, Coal Utilisation pavilion, and Agricultural pavilion.

The British railways pavilion occupies a prominent site on the south side of the hill dominated by the Empire Exhibition Tower, and on the west side of the cascade flowing from the tower to the open space in front of the Palace of Engineering, is a combined exhibit and inquiry bureau. In the latter section a complete travel information and reservation service is at the disposal of visitors to the exhibition. Outstanding exhibits in the pavilion are a series of sectionised coaches of each of the four British main-line railways, and an electric working model railway 140 ft. long, passing through a diorama representative of typical English, Scottish, and Welsh scenery. This model railway was constructed by Bassett-Lowke Limited. Externally, the British railways pavilion is easily identifiable by its high circular hall, nearly 40 ft. in dia., formed almost completely of glass, and by its tall mast encircled by four parallel lines symbolic of the four railways and carrying their initials. These lines extend to the top of the mast and are illuminated at night to form moving spirals of coloured light. Twelve cartoons 8 ft. high make a frieze for the building. These, made of half-inch bar iron, are intended to typify the men behind the railway service and include 222 figures.

In the South African pavilion—there is a pavilion for every major constituent of the British Empire—is an ambitious model railway constructed by Twining Models Limited. Based on the South African Railways system, the equipment includes two trains, a passenger of three cream and blue coaches drawn by a 4-6-2 type locomotive, and a mineral train headed by a 4-8-2. The locomotives are electrically worked without a third rail. The coaches of the passenger train are completely fitted internally and lighted each by six miniature lamps.

Modern decorative treatment in Canadian hardwood strikes a dignified note in the Canadian National Railways' exhibit in the Canadian pavilion. The centre-piece of the display is a series of scenic, agricultural, and industrial views in colour, appearing in rotation above an illuminated map showing the 24,000 miles of this system. The latest development in railway travel—air-conditioning in which passengers can individually control the degree of temperature desired—is illustrated in hand-coloured photographs of the latest type of Canadian National passenger equipment. Views are shown of dining, sleeping, and parlour cars and of a first class day coach, together with an imposing picture of one of the " 6400 " class streamlined steam locomotives.

The Canadian Pacific Railway emphasises its historic closeness with Scotland in two contrasted working dioramas—one, the brig *Jean,* Clyde-built, arriving at Quebec in 1822; the other, the *Empress of Britain,* also Clyde-built, in a setting of 1938. The development and wide interests of the company are illustrated by numerous other models and pictures. Banff, the resort in the Canadian Rockies, is represented by a 14-ft. enlargement featuring its beautiful scenery, together with illuminated transparent pictures of semi-streamlined locomotives and modern passenger and freight trains. The Royal York Hotel at Toronto (the largest in the British Empire) has been chosen to represent the company's fifteen hotels.

In the Burma pavilion the Burmese Railways have an ornamental tea kiosk with posters and photographs and also a model of the Gokteik Gorge and Viaduct. In the Australian pavilion the Victorian Government Railways showed photographs of streamlined rolling stock. The Governments of Southern Rhodesia, Kenya, Uganda, Tanganyika Territory, and Zanzibar, together with the Kenya & Uganda Railway, have combined to erect a Southern Rhodesia pavilion.

The Timber Development Association's all-wood pavilion contains photographs of the latest British wood and steel passenger coaches, and of panelling in sleeping and dining cars. Some railway sleepers are also shown. The extensive amusement park has its own miniature railway with a mile of track three stations, and two trains. The trains are hauled by locomotives built by Hudswell Clarke & Co. Ltd., of Leeds, from the drawings of the " Princess Royal " class lent by the L.M.S.R.

The Exhibition will remain open till October 29. The value of the 100 pavilions and their contents is put at approximately £10,000,000. It is an exhibition devised to attract and satisfy a public drawn from the whole world, particularly from the overseas Empire, equally with the discriminating Scots at its gates. The official hope is for an attendance of 15,000,000 to 20,000,000.

Mansion House Association on Transport

The annual luncheon and general meeting of the Mansion House Association on Transport were held at the Trocadero Restaurant, on May 3. Sir Isidore Salmon, Chairman of the association's Parliamentary Committee, presided at the luncheon at which representatives of various transport users and providers were present, including Sir Ralph Wedgwood.

Mr. W. H. Gaunt, President of the association, said that the day of individual policy, or of localised radius of distribution, was waning, and mentioned that road transport was now operated under some 200 Acts and Orders which comprised 4,518 sub-sections with power to add. The association was awaiting with interest the Road Haulage Wages Bill and the promised legislation on rates and service in the motor industry.

Captain Austin Hudson, Parliamentary Secretary to the Ministry of Transport, mentioned that there were now nearly half a million commercial vehicles on the roads of this country, and said that the Road Haulage Wages Bill was now before the House of Commons. Legislation had been foreshadowed also to deal with the question of rates. The Traffic Advisory Council in its recent report on the co-ordination of transport recommended that opportunity should be afforded to road hauliers to build up a rates structure for their own industry.

Mr. Peter Bennett, President of the F.B.I., urged freedom of choice of transport facilities for traders. He advocated the construction of motor roads in this country similar to those in Germany. Although the cost might be as much as £40,000 a mile he pointed out that already it cost £60,000 a mile to widen existing trunk roads.

Sir John Ward-Law Milne, President of the Coastal Trade Development Association, pointed out that coastwise shipping, which carried some 44,000,000 tons of goods last year, was anxious to co-operate with all forms of land transport.

At the annual meeting held subsequently to the lunch, Mr. W. H. Gaunt, after reviewing the major transport events of the past year as they concerned traders, mentioned the danger of restrictive enactments, particularly at a time when the threat of war was present.

Further London Station Reconstruction

Platform lengthening at the Elephant & Castle to accommodate longer Bakerloo trains—The new exchange station at East Finchley

In connection with the extensive schemes now in hand for projecting London tube trains over suburban surface lines, various station rebuilding and reconstruction schemes are involved. Two of which it has recently been announced that work is about to be begun are the Elephant & Castle and East Finchley. The former is entirely the responsibility of the London Passenger Transport Board, and the latter is the joint concern of London Transport and the L.N.E.R.

Elephant & Castle Station

The object of the work at the Bakerloo Line Elephant & Castle station is to lengthen the platforms from 280 ft. to 377 ft. to accommodate the 7-car trains of new type stock that will be run when the Bakerloo tube trains are projected to Stanmore next year. Two sidings, which now follow the line of the New Kent Road, will be abandoned because the lengthened platform will cut partly across them. New sidings, 515 ft. long, will be built under the Walworth Road. The soil at Elephant & Castle consists of a layer of wet ballast, then a stratum of clay, and then a stratum of 5 ft. of Thanet sand. This sand is very fine and shifting, and is impregnated with water. It will be necessary, therefore, to carry out the bulk of the work under 20 to 25 lb. of compressed air. The platforms will be lengthened at both ends. One working site will be sunk in Farrell Court, off the Walworth Road, where four houses have been demolished to give the necessary space, and from this site the tunnels for the new sidings and the lengthening of the platforms at the southern end will be bored. The City loop of the Northern tube line passes over the new tunnels, and the new tunnelling will be only 6 in. below the tubes of the Northern Line. Simultaneously, there will be tunnelling at the northern end to permit the platforms to be lengthened there also. The contract, which has to be completed within 21 months, is for between £140,000 and £150,000. The Consulting Engineer is Sir Harley Dalrymple-Hay, and the contractor Balfour Beatty & Co.

East Finchley Station

Trains on the Highgate tube line, which is being extended northward from Highgate (to be re-named Archway), will emerge from tunnels on each side of the L.N.E.R. tracks about a quarter of a mile south of East Finchley station, which is an L.N.E.R. station at present used by steam trains running to Barnet and Edgware. The work to be undertaken is necessary to permit the tube trains to rise to the level of the L.N.E.R. tracks, cross the Great North Road, and arrive at East Finchley station. Here passengers will be able, by walking across a platform, to change from trains running to and from the West End and the City by way of Highgate (Archway) or to and from the City by way of Finsbury Park. The L.N.E.R. line to the City will, of course, be electrified.

The first step will be to build two new bridges over the Great North Road, one on each side of the present bridge carrying the L.N.E.R. tracks. The Middlesex County Council is taking the opportunity to widen the Great North Road at this point in anticipation of a large widening scheme which it contemplates undertaking in a few years' time. The new bridges will be about 145 ft. long, and the existing bridge will be lengthened from 100 ft. to 145 ft. This will provide a road 100 ft. between fences instead of 60 ft., as at present.

While the new bridges are being built, the reconstruction of the station will be taken in hand. Two new island platforms, which will be used by City trains on the inside and West End trains on the outside, will have to be provided; the outer half of each platform will be built first. When the two new bridges and the outer halves of the platforms are available, the L.N.E.R. steam trains will be diverted to them temporarily. This will free the existing bridge for reconstruction and will enable alterations to be made to the tracks. When this bridge and the tracks have been reconstructed tube trains to and from the City by way of Finsbury Park will run on the inside lines and trains to and from the West End and the City by way of Highgate (Archway) will run on the outside. The work has been planned and will be supervised by London Transport engineers. The contract, which is for approximately £80,000, has been let to A. Jackman & Son.

East Finchley station will be completely rebuilt, with an imposing façade and a modern ticket hall approximately 35 ft. by 34 ft. The existing subway, 6 ft. wide, will be replaced by a new subway 10 ft. wide. There will be a new forecourt, twice the size of the present one, which will be used as a trolleybus station. Trolleybuses will turn in the forecourt and there will be a shelter for passengers. Contracts for this work have not been let. In addition to the widening of the Great North Road, Brompton Grove (on the east side) will have to be diverted to make room for the abutments of one of the new bridges. The White Lion public house, on the south side of the station, which would have been directly in the path of one of the new tube tracks, is already being rebuilt on a new site.

The contract time for building the bridges, the platforms, and the tracks, is eleven months, and work is being begun immediately. According to the present schedule, tube trains will be running to East Finchley next year.

The L.N.E.R. is making its carriage sidings at Highgate available to London Transport for the storage of tube trains, and in consequence the L.N.E.R. will have to find other accommodation for its Royal train.

Tunnel Enlargement at Piccadilly

The L.P.T.B. is intending to apply to the Minister of Transport for an Order under the Railways Act, 1921, to authorise the board to carry out works for the enlargement of the tunnel of the Bakerloo Railway at Piccadilly station for a distance of 1·19 chains.

Prizes for Track Maintenance, L.P.T.B.

On Tuesday, March 29, the annual distribution of prizes for the best kept sections on London Transport railways, was held at the Staff Dining Club, South Kensington. Approximately 230 people were present, including representatives from those departments whose work is closely connected with that of the Permanent Way Department.

Mr. J. H. Condy (Civil Engineer, Maintenance), in opening the meeting, paid tribute to the excellent work carried out by the members of the Permanent Way Department, and said that this was the fourth year in which prizes had been presented for the best kept sections, and quoted the following annual average markings for the whole of the sections since this system was introduced:—1934, 76·67 per cent.; 1935, 78·0 per cent.; 1936, 78·77 per cent.; 1937, 82·71 per cent. Presenting the prizes, Mr. V. A. M. Robertson (Chief Engineer), after endorsing Mr. Condy's tribute to the permanent way men, gave an illustrated lantern lecture of his recent visit to the United States of America and Canada, dealing with permanent way maintenance and general railway construction, including bridges and ventilation.

Mr. K. Brinsmead (Acting Permanent Way Engineering Assistant), thanked the Chief Engineer on behalf of all those present for presenting the prizes and for his interesting lecture.

PRESERVING HISTORIC RAILWAY LINKS.—A railway committee in the North of England is compiling a list of buildings and historic links associated with the early days of railways, with a view to their preservation in the public interest. Portable objects of historic interest are being concentrated at the Railway Museum at York. The engine exhibits section of this museum now houses probably the most comprehensive collection of early engines anywhere in the world.

QUESTIONS IN PARLIAMENT

Australian Railways

Captain Alan Graham (Wirral—C.) on April 26 asked the Secretary of State for Dominion Affairs if he would cause suitable enquiries to be made whether, in view of its prime strategic importance both to local and to imperial defence generally, the Federal Government of Australia was actively considering the immediate linking up by railway of Port Darwin with the nearest railhead in the interior of the continent.

Mr. Malcolm MacDonald (Secretary of State for Dominion Affairs): I am causing enquiries to be made of His Majesty's Government in the Commonwealth of Australia and I will let the honourable and gallant member know the result.

Mr. F. A. Macquisten (Argyll—C.): Would it not be far better to construct a great motor road or speedway than a railway?

No answer was given.

Transport Facilities to Empire Exhibition

Mr. W. Lunn (Rothwell—Lab.) on April 26 asked the Minister of Transport if he would consult with the railway and other transport companies with a view to providing facilities and cheap fares for school children from all parts of Great Britain to visit the Empire Exhibition in Glasgow, similar to what was provided for school children to visit the British Empire Exhibition at Wembley in 1924.

Captain Austin Hudson (Parliamentary Secretary to the Ministry of Transport): My right hon. friend is informed by the railway companies that they are providing facilities and cheap fares for children visiting the Empire Exhibition at Glasgow which will be more favourable than those which were available for the exhibition at Wembley in 1924-25. I have no doubt that the operators of road transport will appreciate the desirability of facilitating the attendance of children at the exhibition, but my right hon. friend's position under the Road Traffic Act, 1930, precludes him from consulting with them on the question of facilities or fares.

Skilled Railway Engineering Workers

Mr. G. Le M. Mander (Wolverhampton East—Lib.) on April 26 asked the Minister of Labour whether, in view of the fact that the G.W.R. was working short time at Wolverhampton and elsewhere and making discharges, he would arrange for the services of the skilled engineers displaced to be made use of in connection with the arms programme.

Mr. Ernest Brown (Minister of Labour): I have no information that any substantial number of skilled engineering workers is being discharged from the workshops of the company. I would, however, point out that any skilled engineer who becomes unemployed can be put in touch at once through any employment exchange with aircraft work or other work on the Defence Programme, for which he is suitable.

Mr. Mander: Will my right hon. friend bear in mind that there are something like 1,200 first class workmen involved, and will he, therefore, go into the matter further?

Mr. Brown: The facilities of my Department will be available to each and all of the unemployed.

Railway Ban on Air Line Bookings

Mr. Roland Robinson (Blackpool—C.) on April 27 asked the Under Secretary of State for Air in which cases the ban on air-line bookings imposed by the railway companies had been removed since March 28; in which cases did the ban still operate; and when would it be completely removed.

Lieut.-Colonel A. J. Muirhead (Under Secretary of State for Air): Since March 28 the ban has been removed from internal services of Allied Airways but still operates in respect of Olley Air Service and its subsidiary companies, Channel Air Ferries and West Coast Air Services, and in respect of Western Airways Limited. I am not in a position to reply to the last part of the question but I understand that outstanding cases are under discussion.

Mr. Robinson: Now that the difficulties with Allied Airways have been settled can the Minister say why the political ban on the Olley Company still remains?

Lieut.-Colonel Muirhead: The Secretary of State for Air has already represented to the railway companies the desirability of the ban being removed. Unless that is done before the Licensing Order comes before the House it will be dealt with in that Order.

Mrs. Tate (Frome—C.) on April 27 asked the Under Secretary of State for Air whether he would direct a public inquiry, under Section 10 of the several Railway (Air Transport) Acts of 1929, as to the booking ban imposed by the railway companies in respect of certain air-transport companies.

Lieut.-Colonel A. J. Muirhead (Under Secretary of State for Air): No, Sir. It is the intention of my noble friend, in default of agreement with the railway companies, to make provision for dealing with this matter in the Licensing Order relating to internal air services.

Damage by Air Raids to Railway Lines, Bridges, and Stations

Colonel H. L. Nathan (Wandsworth, C.—Lab.) on April 27 asked the Minister of Transport what steps were being taken by his department to ensure the immediate repair of railway lines, bridges, and stations in the event of their being damaged by air raids.

Dr. Leslie Burgin (Minister of Transport): A special technical committee, consisting of officers of the railway companies, the Home Office, and my Department, has been set up to examine these and other precautionary measures.

Colonel Nathan: Can the Minister give any indication when some decisions are likely to be reached, upon which action can and will be taken?

Dr. Burgin: The problem is being surveyed and acted upon. I am not sure whether it is a matter upon which it is necessary to announce decisions. I think the House would like to know that the subject matter in question is being taken in hand. Upon that I can give an answer.

Colonel Nathan: Does the Minister appreciate the importance, not merely of giving consideration to these matters and taking them in hand, but of having steps made effective speedily so as to be ready if the eventuality should arise against which all these matters are being taken into account?

Dr. Burgin: Yes, I appreciate the importance of all these points. What we are discussing here are railway lines, railway bridges, and railway stations, and obviously the repair or replacement of the lines or bridges, from whatever cause, accident or destruction, might arise, is a matter for the main line railway companies. The question now is to bring that problem to a practical point for application quickly in case of emergency. That is the responsibility of my Department and is being discharged.

Mr. Noel Baker (Derby—Lab.): Are we to understand that the railway companies have taken no steps as yet to organise special squads or provide special equipment for this work?

Dr. Burgin: No, you must understand nothing of the kind. There is not a word in my answer to suggest anything of the kind.

Mr. Baker: Are we to understand that it has been done?

There was no reply to this question.

Parliamentary Notes

L.M.S.R. Bill

This Bill was brought from the Commons, read a first time, and referred to the Examiners, in the House of Lords on May 2.

L.N.E.R. Bill

Following on the withdrawal of the petition of Messrs. Sheppard against the L.N.E.R. Bill and of the petition of the Wallsend Corporation against the additional provision in the Bill which relates to the construction of a short railway making a direct connection between the Rising Sun Colliery at Wallsend and the company's Northumberland Dock branch, all opposition to the Bill at the Committee stage in the House of Commons has been withdrawn, and the measure has been referred to the Committee on Unopposed Bills.

STAFF AND LABOUR MATTERS

Holidays with Pay. Government Committee's Report

The Departmental Committee under the Chairmanship of Lord Amulree, appointed by the Minister of Labour in March, 1937, to investigate the extent to which holidays with pay are given to employed workpeople and the possibility of extending the provision of such holidays by statutory enactment or otherwise, and to make recommendations, has now issued its report (Cmd. 5724. H.M.S.O. 1s. 3d.)

The report is in three parts and contains an introduction. From the introduction, which deals with the history of holidays, we learn that annual holidays with pay for salaried employees were established 80 years ago, but holidays for wage earning employees did not appear to any extent until towards the end of last century. Amongst the earliest collective agreements providing holidays with pay certain sections of the railway service appeared.

Part I of the report deals with the remit "to investigate the extent to which holidays with pay are given to employed workpeople." When the committee began its investigations it was estimated that approximately between 1,500,000 and 1,750,000 of manual wage earners were covered by collective agreements providing payment of wages for annual holidays but, while the committee was sitting, additional agreements were made bringing the number of workpeople affected up to about 3,000,000. In addition, holidays with pay are granted to large numbers not under collective agreements and the committee estimates that at the end of March, 1938, holidays with pay in some form are provided for about 7,500,000 workpeople.

Part II deals with "the possibility of extending the provision of such holidays by statutory enactment or otherwise." The committee received evidence in support of a statutory enactment from the General Council of the Trades Union Congress, and from certain individual employers, social workers and publicists. Evidence in opposition to a statutory enactment was tendered by the National Confederation of Employers' Organisations and by representatives of employers organisations in 38 industries. A number of witnesses, including the railway companies, gave evidence in support of "staggering" holidays. At present, all railway employees, with the exception of some 8,000, have holidays with pay by agreement or grant.

Part III deals with "the nature of the problem, conclusions and recommendations." The committee recommends that an annual holiday with pay should be established, without undue delay, as part of the terms of the contract of employment of all employees. This holiday should consist of at least as many days as are in the working week, and these days should as far as practicable be taken consecutively. Where practicable the period of holiday should be arranged to take place between the beginning of summer time and the beginning of October in each year. In any industries in which no collective agreements have been reached making provision for at least one week's holiday with pay in the year, the committee recommends that every possible effort should be made to deal with the matter at the earliest opportunity through the medium of the collective bargaining machinery. The committee feels that wherever that method can be adopted it is greatly to be preferred, and in order to give parties time for consideration and negotiation it is recommended that there should be an interim or probationary period before any legislation is introduced requiring the general provision of a holiday with pay. Such legislation, it is recommended, should be passed during the Parliamentary Session of 1940-41.

With the development of holidays with pay, there is likely, the committee considers, to be a very large increase in the number of persons going from their homes for holidays. Every encouragement should be given by the Minister of Labour to spread over the holiday as much as possible between the beginning of summer time and the beginning of October, and education authorities should endeavour to arrange school holidays (elementary and secondary) so as to fit in with the industrial holidays in the area. The report also states that "it would greatly facilitate the carrying out of schemes for holidays if a branch of the Ministry of Labour were set up with a view to supervising the application and observance of the provision of holidays with pay, promoting the adoption of voluntary agreements for paid holidays and the spread-over of holidays, stimulating those responsible to make the school holidays fit in with industrial holidays, and encouraging local authorities in holiday resorts to supervise the provision of accommodation for visitors and various kindred matters. It would also add to the spreading out of the holiday months if the present Easter Bank Holiday were to take place on a fixed and certain date in the spring instead of Easter Monday."

London Transport Electrical Staff

Arising out of a difference between the Trade Union Side and Employers' Side of London Transport, Trams and Trolleybuses Power Production and Distribution Joint Negotiating Committee upon a claim by the Trade Union Side that the electrical wages staff employed in the Greenwich Generating Station, Sub-stations and Distribution Sections of the Tram and Trolleybus Department of the London Passenger Transport Board should receive an increase of 3d. an hour above their present wages as from November 20, 1937, Mr. John Forster was appointed to sit as independent chairman with the negotiating committee and to give a decision binding on the parties.

Under the award of the independent chairman the rate of wage paid to the electrical wages staff referred to is to be advanced by one-half penny an hour as from November 20, 1937.

The joint negotiating committee represents the London Passenger Transport Board, the Transport and General Workers' Union, the National Union of General and Municipal Workers, the Electrical Trades Union, the National Union of Enginemen, Firemen and Mechanics, and the Amalgamated Engineering Union.

A Modern Electric Refrigerator Factory

On Friday, April 29, the General Electric Co. Ltd. invited a party of press representatives to inspect its Coldair refrigerator factory, which constitutes a recent addition to its existing plant at North Wembley.

Mr. M. J. Railing, Vice-Chairman and Managing Director of the G.E.C., in a speech referred to the great progress of refrigeration in the last 20 years, to which fresh impetus would be given by the new factory. The main reason for choosing this site was the existence, close at hand, of a research department, with which the new factory would work hand in hand. Stressing the benefits of refrigeration to the community at large in its dual application—commercial and domestic—Mr. Railing concluded with a reference to the hall mark of this new department—efficiency and usefulness. The guests were conducted round the excellently appointed and equipped factory and were shown Coldair refrigerators in different stages of construction. The stringency of the inspection and testing to which materials, component parts, assembled units and completed refrigerators are subjected may be gauged by the fact that no fewer than 20 separate tests are carried out during the production sequence. All machinery in the factory is electrically driven, being equipped with G.E.C. motors and control-gear. Heating is by steam-heated electrically-driven blower units at high level, while the lighting equipment of "Osira" mercury vapour electric discharge lamps, gives night-working conditions equal to those of daylight.

PLASTIC STRAIN IN METALS—Professor G. I. Taylor, F.R.S., delivered the twenty-eighth annual May Lecture before the Institute of Metals on Wednesday, May 4, in London. In this lecture plastic strain in metals was approached from the point of view of a mathematician.

NOTES AND NEWS

G.W.R. Trunk Telephone Communications. — Direct railway telephone trunk lines have been brought into use as follow: Paddington and Oxford telephone switchboards; Birmingham and Shrewsbury telephone switchboards. The trunk line between Birmingham and Shrewsbury also affords telephone communication to the divisional offices at Oswestry and Chester.

American Wage-cuts.—A Reuters message from New York, dated April 23, states that the Association of American Railroads has passed a resolution to serve notice of a 15 per cent. wage reduction, effective as from July 1, for all classes of labour. This reduction would mean an annual saving of $250,000,000 (about £50,000,000). The decision is due to the loss of revenue and increased operating costs.

B.A. Western Workshop Closing.—The Buenos Ayres Western Railway has informed the Argentine Government of its decision to close its workshops in view of repeated stoppages on its lines arising out of protests against wage cuts. Meanwhile, the operating staffs are increasing their stoppages of trains to half an hour a day. The company was authorised last month by the Argentine Government to apply wage cuts of 5 per cent.

British Timken Limited.—During the past year, as indicated by Mr. M. B. U. Dewar (the Chairman) at the recent ordinary general meeting, the works of British Timken Limited were kept very fully occupied and the output was the highest in the company's history. Its turnover in the railway machine tool and rolling mill fields had steadily increased. In particular, the demand for Timken bearings for railway axleboxes showed during the year under review a very considerable increase over any previous year.

Review of Standard and Exceptional Charges.—The Railway Rates Tribunal will sit at 10.30 a.m. on Tuesday, May 17, in Court "A," Judges' Quadrangle, Royal Courts of Justice, to review the standard and exceptional charges of each of the amalgamated railway companies pursuant to the provisions of Section 59 of the Railways Act, 1921. The accounts and statements relative to such review lodged with the tribunal by the companies may be inspected at the office of the registrar, Bush House, Aldwych, W.C.2. Notices of objection relative to the review must be filed with the registrar on or before Thursday, May 5.

L.M.S.R. (London) Dramatic Society.—On Monday and Tuesday of this week, May 2 and 3, this society presented at the Fortune Theatre, Drury Lane, the three-act comedy "Spring Tide," by George Billam and J. B. Priestley. The cast of 13 principal characters was as happily chosen as with previous productions of the society, and this pleasant and clever comedy provided an ideal vehicle for the company's talents. The Producer was Mr. W. F. Humphreys, and the Stage Manager Mr. Don Davis. For the past four years the society has arranged two principal productions annually, and the second of 1938 has been fixed for November 4 and 5 next.

Direct London-Glasgow Air Service.—The Railway Air Services direct London–Liverpool–Glasgow schedule (announced in our issue of February 18) was inaugurated on May 2. Departure from Croydon, northbound, is at 9.30 a.m., reaching Glasgow (Renfrew airport) at 12.50 p.m. The returning service leaves Renfrew at 8.45 a.m. and arrives at Croydon at 12 noon. This airport-to-airport time of 3 hr. 15 min. southbound and 3 hr. 20 min. northbound compares with 4 hr. 10 min. for the journey via Belfast (which route is still being maintained). The service is being operated by four-engined D.H.86 aircraft seating 10 passengers and capable of a maximum speed of 170 m.p.h.

Southern Railway Rating.—The Railway Assessment Authority notifies with regard to the second railway valuation roll that a draft of the part relating to the Southern Railway Company was settled by the authority on April 29. The average net receipts for the five years 1930-34, as entered in the draft roll, are £4,617,832. The cumulo is entered at £1,150,000. Both these figures have been agreed between the company and the authority, subject to representations and appeals (if any). Of the cumulo of £1,150,000, there has been allocated to the principal undertaking the sum of £1,088,700, to the docks £61,200 in the aggregate, and to the canals £100. Of the £1,088,700 there has been allocated to Class A as a whole £914,508 and to Class B as a whole £174,192. Any representations to the authority must be made before July 1.

Bridge Strengthening by Welding.—On April 28 Mr. Harold Bruff of the L.N.E.R. (N.E. Area), read before the Institution of Structural Engineers in London a paper on "Repairs and Strengthening of Wrought Iron and Steel Bridges by means of Electric Welding." The paper was illustrated by slides showing details of the bridges before, during, and after being strengthened. The badly corroded condition of some of these bridges was remarkable, and there would have been no other choice than scrapping them but for the application of welding, as described by Mr. Bruff. This refers particularly to Denaby bridge, where parts of the badly-corroded plates were cut out and replaced by new sections. The figures given by Mr. Bruff illustrated the great economy achieved in this way as compared with erecting new steel bridges. A vote of thanks for Mr. Bruff's paper was proposed by Mr. Taylor Thompson, Assistant Engineer, and seconded by Mr. Harrison, Engineer (N.E. Area), L.N.E.R. During the discussion, in which Mr. O. Bondy and others took part, a high tribute was paid to the inspiration and courage of Mr. Bruff who had done so much pioneer work in this country to popularise the application of electric-arc welding in the structural field, but particularly in the repair and strengthening of railway bridges.

Loans for Two U.S. Railway Companies.—A Reuters message from New York, dated April 22, states that the Reconstruction Finance Corporation has approved a loan of $14,000,000 to the Southern Railway for the purchase of 5,000 freight cars. At the same time, the Interstate Commerce Commission has authorised a R.F.C. loan of $14,000,000 to the Southern Pacific Railway for various corporate purposes.

Electrification Contracts for British Insulated Cables.—Speaking at the recent annual meeting of British Insulated Cables Limited, the Chairman (Sir Alexander Roger) said that the work of electrification on the Central Railway of Brazil on which the company was engaged was nearing completion well up to time, and the Polish contract was completed some months ago to the entire satisfaction of the Polish Government. The contracts obtained from the L.N.E.R. for the track-equipment work involved in the electrification of the main line from Manchester to Sheffield and in the London area from Liverpool Street and Fenchurch Street stations to Shenfield covered over 400 miles of single track and had a value of over £1,000,000. These contracts constituted by far the most important railway work yet to be carried out in this country on the overhead system.

Training in Signalling and Communications, Southern Area, L.N.E.R.—The Signal and Telegraph Engineer, Southern Area, L.N.E.R., last month distributed prizes, which had been presented by Mr. R. J. M. Inglis, Engineer, Southern Area, to the most successful students at each of the four District Signalling Centres. These schools were instituted last September at King's Cross, Peterborough, Sheffield, and Stowmarket, and classes have been held weekly. At King's Cross and Stowmarket 19 lectures were given, and at Peterborough and Sheffield 21. It is a tribute to the success of these classes that students almost unanimously have expressed a desire for their continuance and have further asked that they might be supplemented at each centre by a more advanced course for those who have qualified by obtaining at least 50 per cent. of marks in the first session. The number of applicants for the original course was 513. The mobile signalling instruction van, illustrated and described in THE RAILWAY GAZETTE of March 25, was put into commission on October 25 last, and has since spent one month at each of the following

depots: King's Cross, Peterborough, Boston, Leeds, Sheffield, and Doncaster. The inspectors were asked to send their most promising young men for training in the school, two students being taken each week, and altogether 49 students were trained.

Dock Gate Renewal at Grimsby, L.N.E.R.—The dock gates of No. 1 graving dock at the Royal Dock, Grimsby, are to be renewed. This dock is almost constantly in use by steamships requiring overhaul and repairs, and to renew the dock gates in the normal manner would involve putting the graving dock out of commission for about four months. One new gate is therefore to be constructed and used to replace one of the existing gates, which will be taken away and completely renewed. It will then be brought back to the graving dock to replace the other original gate. In this way the dock will be kept in commission except for a few days when the gates are being stepped. The work will be carried out by the company's staff and will cost about £3,000.

Forthcoming Events

May 9 (*Mon.*).—Permanent Way Institution (London), at Underground Railways' Dining Club, Pelham Street, S.W.7, 7 p.m. "Weed Killing on Railways," by Mr. E. Brady.

May 10 (*Tues.*).—Institution of Civil Engineers Great George Street, London, S.W.1, 6 p.m. Annual General Meeting (Corporate Members only).

Permanent Way Institution (Sheffield), at Royal Victoria Hotel, 7 p.m. Short Papers.

May 11 (*Wed.*).—Institute of Transport (Manchester-Liverpool Graduate), at Central Library, Manchester, 6.30 p.m. Annual General Meeting.

May 12 (*Thurs.*).—Institution of Electrical Engineers (London), Savoy Place, W.C.2, 6 p.m. Annual General Meeting (Corporate Members and Associates only). Faraday Lecture: "The Evolution of Electrical Power," by Mr. A. Fleming.

Radio Talk in the National Programme, 8.40 p.m. "Railways," by Sir Ralph Wedgwood.

May 13 (*Fri.*).—Past and Present Crewe Pupils and Premiums Dinner, at the Trocadero Restaurant, Piccadilly, London, W.1, 7.15 for 7.45 p.m.

May 15 (*Sun.*).—Omnibus Society. Visit to Leicester City Transport Depot.

May 18–21.—Institute of Transport, at North British Station Hotel, Edinburgh. Annual Congress.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 17th Week			Totals to Date		
	1938	1937	Inc. or Dec.	1938	1937	Inc. or Dec.
L.M.S.R. (6,852¼ mls.)	£	£	£	£	£	£
Passenger-train traffic	477,000	471,000	+ 6,000	7,249,000	7,050,000	+ 199,000
Merchandise, &c.	481,000	516,000	− 35,000	8,157,000	8,341,000	− 184,000
Coal and coke	239,000	246,000	− 7,000	4,741,000	4,785,000	− 44,000
Goods-train traffic	720,000	762,000	− 42,000	12,898,000	13,126,000	− 228,000
Total receipts	1,197,000	1,233,000	− 36,000	20,147,000	20,176,000	− 29,000
L.N.E.R. (6,315 mls.)						
Passenger-train traffic	305,000	313,000	− 8,000	4,748,000	4,678,000	+ 70,000
Merchandise, &c.	359,000	364,000	− 5,000	5,730,000	5,761,000	− 31,000
Coal and coke	253,000	259,000	− 6,000	4,468,000	4,419,000	+ 49,000
Goods-train traffic	612,000	623,000	− 11,000	10,198,000	10,180,000	+ 18,000
Total receipts	917,000	936,000	− 19,000	14,946,000	14,858,000	+ 88,000
G.W.R. (3,737 mls.)						
Passenger-train traffic	194,000	191,000	+ 3,000	3,036,000	2,953,000	+ 83,000
Merchandise, &c.	195,000	215,000	− 20,000	3,291,000	3,315,000	− 24,000
Coal and coke	112,000	113,000	− 1,000	2,008,000	1,981,000	+ 27,000
Goods-train traffic	307,000	328,000	− 21,000	5,299,000	5,296,000	+ 3,000
Total receipts	501,000	519,000	− 18,000	8,335,000	8,249,000	+ 86,000
S.R. (2,147 mls.)						
Passenger-train traffic	294,000	287,000	+ 7,000	4,717,000	4,567,000	+ 150,000
Merchandise, &c.	72,000	74,500	− 2,500	1,026,500	1,036,000	− 9,500
Coal and coke	31,000	30,500	+ 500	577,500	582,000	− 4,500
Goods-train traffic	103,000	105,000	− 2,000	1,604,000	1,618,000	− 14,000
Total receipts	397,000	392,000	+ 5,000	6,321,000	6,185,000	+ 136,000
Liverpool Overhead (6½ mls.)	1,326	1,206	+ 120	22,462	20,128	+ 2,334
Mersey (4½ mls.)	4,392	4,196	+ 196	75,247	72,163	+ 3,084
*London Passenger Transport Board	568,500	561,000	+ 7,500	24,740,500	24,649,500	+ 91,000
IRELAND						
Belfast & C.D. (80 mls.) pass.	1,808	1,831	− 23	31,072	29,612	+ 1,460
" " goods	474	534	− 60	7,549	8,521	− 972
" " total	2,282	2,365	− 83	38,621	38,133	+ 488
Great Northern (543 mls.) pass.	9,000	8,700	+ 300	147,050	141,800	+ 5,250
" " goods	9,700	11,500	− 1,800	148,900	164,100	− 15,200
" " total	18,700	20,200	− 1,500	295,950	305,900	− 9,950
Great Southern (2,076 mls.) pass.	34,014	31,236	+ 2,778	503,903	485,219	+ 18,684
" " goods	40,866	43,050	− 2,184	677,188	726,063	− 48,875
" " total	74,880	74,286	+ 594	1,181,091	1,211,282	− 30,191

* 44th week (before pooling)

British and Irish Railway Stocks and Shares

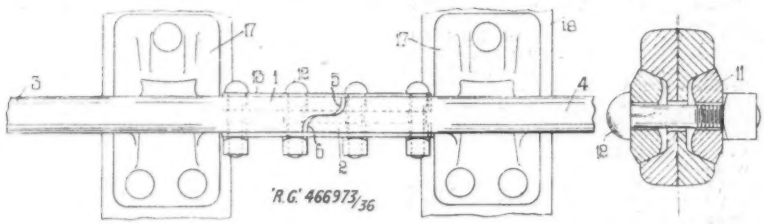
Stocks	Highest 1937	Lowest 1937	Prices May 4, 1938	Prices Rise, Fall
G.W.R.				
Cons. Ord.	67⅝	55¾	54½	−1½
5% Con. Prefce.	127	108	117½	—
5% Red.Pref.(1950)	113	109	109½	—
4% Deb.	113⅝	102½	110	—
4½% Deb.	118	106	111½	—
4½% Deb.	124½	112	117½	—
5% Deb.	136½	122¾	129½	—
2½% Deb.	76	64	67½	—
5% Rt. Charge	133 7/16	118	127½	—
5% Cons. Guar.	133¾	116½	127½	—
L.M.S.R.				
Ord.	36⅛	25⅜	21	−¾
4% Prefce. (1923)	82½	65¾	58	−1½
4% Prefce.	92½	77¾	75½	−1
5% Red.Pref.(1955)	107¾	102	102	—
4% Deb.	108	99¼	102½	−1
5% Red.Deb.(1952)	117½	111	113½	—
4% Guar.	104	95⅞	100½	—
L.N.E.R.				
5% Pref. Ord.	12½	6¾	5½	−½
Def. Ord.	6¼	3⅝	3	−⅛
4% First Prefce.	79½	63	57½	−1½
4% Second Prefce.	31½	21	20½	−1½
5% Red.Pref.(1955)	101¼	89¾	89½	—
4% First Guar.	103	91⅞	96½	—
4% Second Guar.	97⅝	85½	87	—
3% Deb.	84⅛	74	76½	−1
4% Deb.	107¼	98½	101½	−1
5% Red.Deb.(1947)	113½	106½	109½	—
4½% Sinking Fund Red. Deb.	110 5/16	105½	108	—
SOUTHERN				
Pref. Ord.	98⅝	83½	77	−1
Def. Ord.	27⅞	16¾	20¼	−¼
5% Pref.	126 1/16	105 13/16	114½	—
5% Red.Pref.(1964)	118	110¼	113½	—
5% Guar. Prefce.	133¾	116¾	126½	—
5% Red.Guar.Pref. (1957)	118½	111½	115	—
4% Deb.	112	101¼	108½	—
5% Deb.	135¾	123½	127½	—
4% Red. Deb. 1962–67	113	105	108½	—
BELFAST & C.D.				
Ord.	5	4	4½	—
FORTH BRIDGE				
4% Deb.	106	99½	100½	—
4% Guar.	105¾	99	101½	+1
G. NORTHERN (IRELAND)				
Ord.	11	5	5½	+1/16
G. SOUTHERN (IRELAND)				
Ord.	50	21½	20	↔
Prefce.	61	34	28½	+1
Guar.	94⅜	69½	52½	—
Deb.	95	82⅛	79⅞	+⅛
L.P.T.B.				
4½% "A"	123¾	110½	118½	—
5% "A"	135	121½	127½	—
4½% "T.F.A."	108¾	104	106	+½
5% "B"	125	114½	120½	—
"C"	99¾	75	78	−½
MERSEY				
Ord.	42⅜	22	19	—
4% Perp. Deb.	103	96⅝	100	—
3% Perp. Deb.	77⅝	74½	74½	—
3% Perp. Prefce.	68¾	61¼	63	—

ABSTRACTS OF RECENT PATENTS*

No. 465,943. Starting Diesel Engines

Maschinenfabrik Augsburg-Nurnberg A.-G., of 7, Stadtbackstrasse, Augsburg, Germany. (*Convention date: September 22, 1934.*)

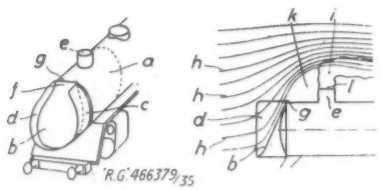
This is a method of starting diesel engines under load, acting directly on the driving axles of locomotives. According to this method, before or during the compression stroke, and before compression begins, preheated throttled compressed air is introduced into the cylinder when the exhaust valve is still open, this air being preheated to such a degree that the final compression temperature of the air, after compression to approximately 10-18 atmospheres and at the commencement of fuel ignition, lies somewhat above the fuel ignition temperature. After ignition has taken place, further compressed air is introduced at a pressure higher than the compression pressure when the combustion pressure has fallen to the level of the pressure of the additional air.—(*Accepted May 18, 1937.*)



No. 466,379. Smoke Deflectors

W. Kukuk, of 22, Pettenkaferstrasse, Munich, Germany. (*Convention date: June 25, 1935.*)

According to this invention, the steam and smoke mixture issuing from a low chimney *e* of a locomotive, is prevented from beating down on to the driver's cab and thereby obstructing his view, by providing a smoke deflector comprising a rearwardly inclined windscreen *b* arranged in front of the smokebox *a* within a frame composed of forwardly projecting walls *c*, *d*, forming at the top a throat *f* and operative to project through the latter in front of the chimney *e*, a steep, upwardly directed blast of air. With this arrangement the kinetic energy of the steam and smoke mixture is utilised to raise the mixture beyond the reach of the cab.—(*Accepted May 27, 1937.*)



No. 466,973. Rail Joints

A. N. Brogden, of 413, Lytham Road, Blackpool, Lancashire. (*Application date: February 29, 1936.*)

Rails are already known in which the ends are divided from the centre to be of half thickness so that when fitted to a similarly cut rail end, the two cut parts overlap and present a continuous rail of even thickness. But in such known case the fishplates extended over the sleepers. According to the present invention the overlapping parts 5, 6 of the rail ends and the fishplates 13 lie wholly between adjacent chains 17 and sleepers 18.—(*Accepted June 9, 1937.*)

No. 466,155. Sleepers

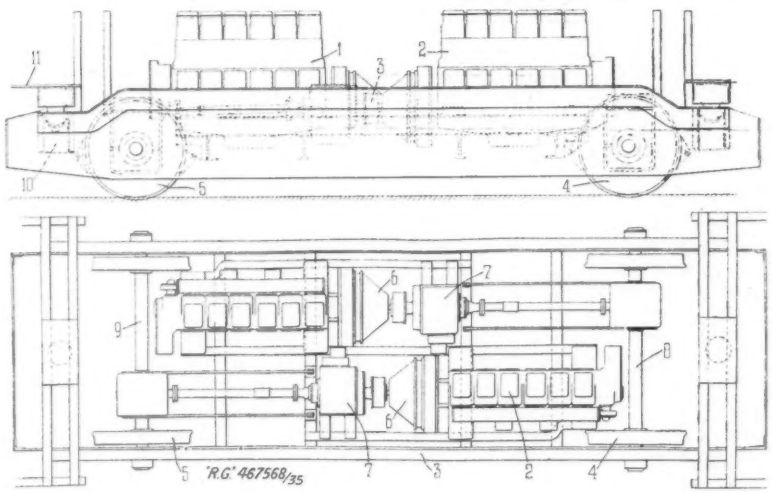
Societa Anonima Eternit Pietra Artificiale, of 8, Piazza Corridoni, Genoa, Italy. (*Convention date: April 25, 1936.*)

By this invention it is proposed to use reinforced cement-asbestos sleepers. According to the specification, the sleepers are made by superposing successive layers of cement-asbestos in a soft condition, interposing metal ribs at suitable depths to reinforce the structure, and compressing the whole under great pressure to ensure perfect union. The advantages claimed are that the sleepers of the present invention are not so stiff as those of iron or reinforced concrete and have a tensile strength equal to six times that of cement concrete, whilst the breaking load under compression is equal to six times that of the cement conglomerate of reinforced concrete.—(*Accepted May 24, 1937.*)

No. 467,568. Self-Propelled Rail Vehicle

Walker Bros. (Wigan) Limited, of Pagefield Iron Works, Wigan, Lancaster. (*Application date: December 16, 1935.*)

A pair of coach units, each supported at one end by a pair of wheels, is supported at the other ends 11 by a driving unit having a pair of driving wheel axles 8, 9, each driven by a propulsive engine 1, 2, which engines are disposed asymmetrically with their driving shafts parallel but disposed in opposite directions. It is stated that by this arrangement an extremely short assembly is provided, with the advantage of considerably increased adhesion on the driving wheels of the driving unit.—(*Accepted June 16, 1937.*)

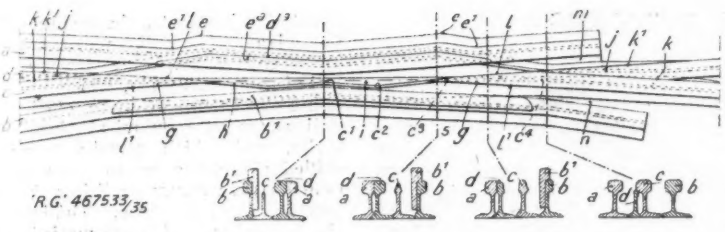


No. 467,533. Railway Crossing

J. F. E., and R. L. Grand, respectively of 108, Boulevard de Magenta, Paris; and of 6, Boulevard Chanzy, Livsy-Gargan (Seine and Oise), France. (*Convention date: June 19, 1935.*)

The purpose of the present invention is to prevent displacement of the points or noses of a track crossing relatively to each other and relatively to the bent rail supporting the wheels. To this end the two points or noses *g* of the crossing constituted by four assembled rails *a*, *b*, *c*, *d*, are formed by one and the same rail *c*, whilst the two counterpoints *j* are formed by another rail *d*, the two rails *c* and *d* being

* These abridgments of recently published specifications are specially compiled for THE RAILWAY GAZETTE by permission of the Controller of His Majesty's Stationery Office. Group abridgments can be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, either sheet by sheet as issued, on payment of a subscription of 5s. a group volume, or in bound volumes, price 2s. each, and the full specifications can be obtained from the same address price 1s. each



rigidly united together and to the outer bent rail *a*. Furthermore, the point rail *c* is also rigid with the inner guard rail *b* so that the entire crossing constitutes a single unit.—(*Accepted June 18, 1937.*)

COMPLETE SPECIFICATIONS ACCEPTED

465,843. Gallusser, H. Automatic double-acting devices for adjusting the play which develops in brake systems in railway vehicles and motorcars.

465,846. Cockburns Limited, and MacNicoll, D. Slide stop valves.

465,943. Maschinenfabrik Augsburg-Nurnberg A.-G. Method of st rting diesel engines under load, particularly diesel engines acting directly on the driving axles of locomotives.

466,079. Urrutia Echevarria, J. de. Grease box for rolling stock for railways and tramways.

466,119. Kershaw, A. G., Simmons, A. W., and Westinghouse Brake & Signal Co. Ltd. Fluid-pressure braking apparatus.

466,155. Soc. Anon. Eternit Pietra Artificiale. Sleepers for railways, tramways, and the like.

466,175. Kershaw, A. G., Simmons, A. W., and Westinghouse Brake & Signal Co. Ltd. Fluid-pressure braking apparatus.

466,248. Veillon, H. Zoelly-. Steam-power plants, especially turbine locomotives.

466,379. Kukuk, W. Smoke deflectors for steam locomotives.

466,403. Friedmann, L. (trading as Friedmann, A., firm of). Labyrinth packing for sliding bearings of railway vehicles.

466,436. Voith, W., Voith, H., and Voith, H. (trading as Voith, J. M., firm of). Hydraulic brakes, more particularly for rail and road vehicles.

466,500. Westinghouse Brake & Signal Co. Ltd. Railway track-circuit apparatus.

466,617. Baker, W. S. Graff-, and Blackshaw, J. E. Automatic couplings for railway vehicles.

466,642. Henneking, C. Methods of, and apparatus for, conveying railway vehicles over natural ground or cultivated ground of all kinds.

466,688. Grand, J. F. E. Railroad crossings.

466,690. Dobrowolny, J. Railway rail-joints.

466,713. Rost, H. F. Vehicles and machines provided with trucks.

466,792. Brackenbury, A. G., and Westinghouse Brake & Signal Co. Ltd. Automatic slack-adjusting devices for braking-apparatus on railway and other vehicles.

466,944. Svenska Aktiebolaget Gas-Accumulator. Electric-signalling systems for railways.

466,973. Brogden, A. N. Rail Joints.

467,533. Grand, J. F. E., and Grand, R. L. Railroad crossings.

467,568. Walker Bros. (Wigan) Limited, and Walker, A. G. Rail vehicles.

467,642. Baker, W. S. Graff-, and London Passenger Transport Board. Electric traction braking-equipment.

Highest Cableway in the World

The Aiguille du Midi cableway, the first to be built in France for the use of travellers, was carried to an altitude of 2,431 metres in 1927 to the point called Les Glaciers. It has now been decided to carry the line still higher up to the Col du Midi, making a total height of 3,625 metres. When completed it will be the highest cableway in the world, states Reuters trade Service from Paris. Half the cost of this project, which will be about five million francs, will be covered by subsidies from the State, the department of Haute-Savoie, and the town of Chamonix.

Work is to be begun this summer because it is possible to work at this altitude only between June and October. It will be at least two summers before the work is completed. The plan for the line has already been worked out and the precise route decided upon. The first step will be to stretch a cable between the two points, establishing a line of communication for the transport of the workers and necessary material. The first light rope, forming the basis of the cable, will probably be carried by a plane and unrolled along the Col du Midi. It is expected that there will be frequent interruptions during the first part of the work owing to snowstorms. When the service cable is established work will begin on the lower station, some fifty metres from the present Les Glaciers station. After the construction of the upper station the numerous carrying and hoisting cables will be strung out over the proposed route. This will be the second and last lap.

The new section will add a further 1,200 metres to the height of the line and will be climbed in a quarter of an hour. At present it takes half an hour to reach the Les Glaciers station, so when the new cableway is built travellers will be taken from the Chamonix valley to the Col du Midi in three-quarters of an hour. Even in the hottest part of the summer it will be possible to ski in the valley behind the Aiguille du Midi range known as the Vallée Blanche. In times of heavy snow, skiers will be taken by the new line to the starting point of a ski run of 16 to 18 km. which joins the Chamonix valley by way of the Géant glacier and the Mer de Glace. This run has a drop of 2,500 metres.

Square Pegs in Round Holes

The last meeting of the session of the G.W.R. (London) Lecture and Debating Society on March 31 was occupied by the annual general meeting and by a discussion by young members on the question "Square Pegs in Round Holes: what is the solution?" Mr. H. Wheeler (Assistant to the General Manager) presided. The view was expressed that a poor judge of character might be responsible for many square pegs, since the personal interview was often the decisive event in a man's career. It was suggested that this might be counteracted by changing men to another job as soon as they had learnt the one they were doing, in a planned scheme of regular rotation. Another view was that the solution was more likely to lie in a closer study of the child at school and for three or four years afterwards in order to determine as scientifically as possible for what work it was best fitted. Education was concerned too much with abstract things and too little with practical, it was misdirected and insufficient. Two steps in the direction of solving the problem would be to reduce the size of classes, thus increasing the amount of attention it was possible to pay to each child, and to raise the school leaving age, the last few years being occupied by vocational training.

It was also suggested that there was a demand for a railway educational department under which the training of all grades of railway staff would be carried out for specific duties in relation to the expressed leanings. Other speakers remarked that the re-allocation of work among the staff from time to time would not only help the square peg, but also the departmental chief in his search for ability; that the solution lay more in the compensatory influence of leisure than in work itself; and proposed that an employee's natural aptitudes should be ascertained by psychological methods at the time he entered employment.

STEAM ON THE ELECTRIFIED WIRRAL LINES.—Despite electrification, the Wirral lines of the L.M.S.R. have not entirely said farewell to steam. The freight services are continuing to be steam worked, and there is also one steam passenger train running in each direction every weekday between West Kirby and New Brighton in order to convey the through coach between the latter place and Euston.

XUM

CONTRACTS AND TENDERS

Ransomes & Rapier Limited has received the order for the six-ton petrol-electric mobile crane which, as we announced last week, is to be included by the L.N.E.R. in the new all-electric equipment to be installed at Wellington Street good depot, Leeds.

German Locomotives for Brazil

A contract for the supply of 25 German locomotives and 1,000 wagons to the Central Brazil Railway was signed in Rio de Janeiro on April 29, states Reuter. The contract is valued at £94,000.

Ateliers de la Dyle S.A. has received an order for a further five carriage underframes in extension of that for 20 placed by the Siamese State Railways, to the inspection of Messrs. Sandberg, which we recorded last week.

La Brugeoise et Nicaise & Delcuve S.A. has received an order from the Peruvian Corporation for 28 35-ton all-steel bogie flat wagons with diamond-framed bogies.

The South Indian Railway Administration has placed the following orders to the inspection of Messrs. Robert White & Partners :—

Surahammar Brukes Akt., through Ernst B. Westman Limited : 166 pairs of metre-gauge wheels and axles with 9 in. × 4½ in. journals, and 104 pairs with 7 in. × 4 in. journals, for carriages and wagons.

Wm. Beardmore & Co. Ltd. : 150 pairs of metre-gauge wheels and axles with 9 in. × 4½in. journals, 88 pairs with 7 in. × 4 in. journals, and 32 pairs for 2 ft. 6 in.-gauge with 6 in. × 3½ in. journals, for carriages and wagons.

J. Baker & Bessemer, Limited : 204 carriage and wagon tyres.

Banting & Tresillian : 3,900 solid-drawn steel boiler tubes.

Birmingham Battery & Metal Co. Ltd. : 12⅛ tons of copper rods.

Kitchen & Wade Limited has received an order from the Central Uruguay Railway for one motor-driven radial drilling and tapping machine.

The Crown Agents for the Colonies have recently placed the following orders :—

P. & W. Maclellan Limited : Iron sheets ; mild steel plates ; steel joists.

Jones, Burton & Co. Ltd. : Lathe.

H. Pooley & Son Limited : Loadometers.

Talbot Stead Tube Co. Ltd. : Locomotive steel tubes.

Thos. Firth & John Brown Limited : Locomotive tyres.

J. Baker & Bessemer Limited : Locomotive tyres.

Consett Iron Co. Ltd. : Mild steel angles.

C. Isler & Co. Ltd. : Percussion boring tools.

W. Baird & Co. Ltd. : Pig iron.

Stanton Ironworks Co. Ltd. : Pipes.

Stewarts and Lloyds Limited : Piping and fittings ; steam flanges ; steel casing.

Dorman, Long & Co. Ltd. : Rails and fishplates.

Guest, Keen, Baldwins Iron & Steel Company: Rails and fishplates.

Westinghouse Brake & Signal Co. Ltd. : Signal materials.

Appleby-Frodingham Steel Co. Ltd. : Steel bars.

Barrow Haematite Steel Co. Ltd. : Steel bearing plates.

Mechans Limited : Steel tank.

F. Morton & Co. Ltd. : Steelwork.

British Thomson-Houston Co. Ltd. : Switchgear.

Bullers Limited : Telegraph ironwork.

J. Beresford & Son Limited : Washbasins.

F. Smith & Co. : Wire.

R. Bowran & Co. (1934) Ltd. has received a contract from the L.N.E.R. for cleaning and painting Queen Street High Level station, Glasgow. Queen Street is the principal L.N.E.R. station in Glasgow and the present sombre colouring of the columns and steelwork is to be replaced by a warm shade of grey which it is hoped will brighten that station considerably.

The Bombay, Baroda & Central India Railway Administration has placed the following orders to the inspection of Messrs. Rendel, Palmer & Tritton : General Electric Co. Ltd., 5,500 yd. of lead sheathed and armoured cable for power signalling ; and W. T. Henley's Telegraph Works Co. Ltd., 5,000 yd., Johnson & Phillips Limited, 8,500 yd., and Callender's Cable & Construction Co. Ltd., 9,000 yd. of armoured cable for power signalling.

G.W.R. Contracts

The directors of the Great Western Railway have authorised the placing of the following contracts :—

Westinghouse Brake & Signal Co. Ltd. : Provision of hump yard apparatus at East and West Yards, Severn Tunnel Junction.

Caffin & Co. Ltd. : Reconstruction of Trenance Viaduct, near Newquay station.

C. A. Hayes & Sons Ltd. : Improvements to the station buildings at St. Austell.

E. C. & J. Keay Limited : Supply of steelwork for use in effecting repairs to No. 1 span of roof of Paddington passenger station.

C. A. Hayes & Sons Ltd. : Construction of timber-framed roof covering at Bristol (Temple Meads) station.

New Equipment for C.P.R.

Arrangements for the construction in Canada of $2,340,000 worth of new railway equipment were completed recently by the Canadian Pacific Railway. The orders consist of ten new locomotives of heavy and powerful design, 50 special automobile cars, and 50 special refrigerator cars. The ten locomotives which will be constructed by the Montreal Locomotive Works, are a further development of 20 of the same wheel arrangement put into service in 1929 over the mountain grades between Field and Revelstoke. These ten T-1-b class locomotives are the heaviest and most powerful in service in Canada and will be used to power passenger trains between Calgary and Revelstoke. They will be semi-streamlined, will use oil as fuel, and will be equipped with latest locomotive developments. They will have a 2-10-4 wheel arrangement with 5 ft. 3 in. coupled wheels. The 50 automobile cars which will be constructed by the Canadian Car & Foundry Company will be of all-steel construction and will be of special height for the handling of shipments of the largest types of trucks and buses. In addition to staggered side doors, large doors will be built into one end of each car to facilitate loading. Latest type freight-car bogies and shock absorbers will provide easy riding qualities. The 50 new refrigerator cars which will be built in the Canadian Pacific Angus shops, Montreal, will also embody latest developments, the results of the Canadian Pacific Railway's experiments in recent years. New features will include overhead icing, which has been found to be much more efficient as well as more economical than other styles, and which permits frozen or chilled shipments across Canada with uniform temperature conditions throughout the car at all times. The cars will also be equipped with automatic heating facilities for maintaining uniform temperatures for perishable lading during the winter months.

The Gondal Railway Administration has placed the following orders to the inspection of Messrs. Robert White & Partners :—

Henschel & Sohn A.G. : One complete firebox for metre-gauge locomotive.

Steel, Peech & Tozer : 132 locomotive, carriage, and wagon laminated springs.

Brown Bayley's Steel Works Limited : 72 helical and 72 volute springs.

The Argentine Government, it is reported, is to spend $14,600,000 on new rolling stock and other renewals on the State Railways.

Bridgework required for South Africa

The South African Railways & Harbours Administration is calling for tenders (Tender No. 1741) for the supply and delivery of approximately 414 tons of steelwork for bridges, together with rivets, bolts, and nuts. Tenders endorsed "Tender No. 1741 for Bridgework" must be received by the Secretary to the Tender Board, South African Railways & Harbours Headquarter Offices, Room 197, Johannesburg, by July 11. A copy of the specification and general conditions of tender, together with drawings, may be borrowed from the Department of Overseas Trade, London, S.W.1. Local representation is essential.

Locomotive Boilers required for India

The Eastern Bengal Railway is calling for tenders (Tender No. A.G.T.-A-2) for the supply and delivery of a number of superheated locomotive boilers, complete with fireboxes, for broad and metre gauge engines. Tenders endorsed "Agents Tender No. A.G.T.-A-2 of 1938 for Locomotive Boilers" must reach the Agent, Eastern Bengal Railway, 3, Koilaghat Street, Calcutta, by June 8.

Tenders are invited by the South Indian Railway, receivable at 91, Petty France, Westminster, S.W.1, by May 13, for the supply of copper plates. Copies of the drawings may be obtained at the offices of Messrs. Robert White & Partners, 3, Victoria Street, Westminster, S.W.1.

Tenders are invited by the Chief Controller of Stores, Indian Stores Department (Electrical Section), Simla, receivable by May 19, for the supply of six single-operator d.c. arc-welding dynamos, 300 amp.-capacity, a.c. motor driven, required for the carriage and wagon shops at Moghalpura, North Western Railway, India.

OFFICIAL NOTICES

Crown Agents for the Colonies

COLONIAL GOVERNMENT APPOINTMENTS

APPLICATIONS from qualified candidates are invited for the following post:—
ASSISTANT MECHANICAL OFFICER required for the Nigerian Government Railway for two tours each of 12-24 months, with possible permanency. Salary £475 a year rising to £840 a year. Free passages and quarters and liberal leave on full salary. Candidates, aged 23-35, must be Associate Members of either the Institution of Mechanical Engineers or the Institution of Locomotive Engineers. They must have served a full apprenticeship with a British Railway or Locomotive firm and subsequently have had experience in a Railway Motive Power Department; and possess a sound knowledge of District Organisation and administration, together with experience of Running Shed Organisation and the supervision of footplate and Running Shed Staff.

Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/5504.

RAILWAY DRAFTSMAN required for development of light alloys in rolling stock and transport industry. Design experience essential. Permanent position. Wide scope. State briefly age, salary required, and past experience.—Box 65, c/o THE RAILWAY GAZETTE, 33, Tothill Street, Westminster, S.W.1.

The Bengal and North Western Railway Company Limited

THE Directors are prepared to receive Tenders for the supply of:—
SIX LOCOMOTIVE BOILERS—F CLASS SUPERHEATED,
as per Specification to be seen at the Company's Offices.

Tenders addressed to the undersigned, and envelope marked "Tender for Boilers," with the name of the firm tendering, to be lodged not later than Noon on the 31st day of May, 1938.

For each Specification a fee of 10s. will be charged, which cannot, under any circumstances, be returned.

The Directors do not bind themselves to accept the lowest or any Tender.

By Order of the Board,
J. WILLIAMSON,
Managing Director.

237, Gresham House,
Old Broad Street,
London, E.C.2.
3rd May, 1938.

Universal Directory of Railway Officials and Railway Year Book

43rd Annual Edition, 1937-38

Price 20/- net.

THE DIRECTORY PUBLISHING CO. LTD.
33, Tothill Street, Westminster, S.W.1.

Rio Tinto Company Limited

DIVIDEND ON SHARES TO BEARER.

HOLDERS OF SHARE WARRANTS TO BEARER are informed that they will receive PAYMENT of the DIVIDEND declared at the General Meeting held on the 29th inst., at the rate of Two Shillings and Sixpence per Share on the Preference Shares, less Income Tax, on and after Saturday, the 14th May, 1938, on presentation of Coupon No. 82, on the Preference Shares, either at the Company's Office in London, or at the Société Générale, 29, Boulevard Haussmann, Paris.

Coupons for payment in London must be left four clear days previously for examination, and may be deposited forthwith

By Order,
R. H. BEECHER,
Secretary.

Offices of the Company:
11, Old Jewry,
London, E.C.2.
29th April, 1938.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

The Accelerated Royal Scot

A considerable tax on locomotive capacity was imposed on the first run of the accelerated Royal Scot of the L.M.S.R. from Euston to Glasgow on Monday last. The timing is 30 min. less than that which was in force last summer, with the same stops, and in view of the sustained high speed so rendered necessary, the load of the train has been limited to 420 tons. In this first run, however, owing to the Royal opening of the Empire Exhibition in Glasgow on the following day, a 14-coach formation had been made up which, with practically every seat occupied weighed fully 460 tons as far as Symington. This heavy train was worked in succession over the summits of Shap and Beattock, respectively 915 and 1,015 ft. above sea level, without banking assistance by the original Stanier 4-6-2 locomotive No. 6200, *The Princess Royal*.

From Euston to Carlisle Driver Bishop (Camden shed) was in charge, and the running was characterised by close adherence to the new schedule times. Once the mile-a-minute rate had been reached beyond Willesden, speed never fell below it for 125 miles, except when slowing through Rugby; the minimum speeds, mostly up 1 in 330 grades, were 61 m.p.h. at Hatch End and at Tring, 60 at Roade and before Kilsby tunnel, and 64½ after Lichfield. Maximum speeds reached were 66 m.p.h. at Watford, 79 beyond Cheddington, 77½ at Wolverton, 71½ at Weedon and before Rugby, 77½ at Nuneaton and Hademore, and 71½ before Rugeley. Willesden, 5·4 miles, was passed in 9 min. 24 sec., Watford, 17·4 miles, in 20 min. 58 sec., Tring, 31·7 miles, in 34 min. 35 sec., Bletchley, 46·7 miles, in 46 min. 45 sec., Rugby, 82·6 miles, in 78 min. 52 sec. (at 45 m.p.h.), Nuneaton, 97·1 miles, in 93 min. 20 sec., and Rugeley, 124·3 miles, in 115 min. 58 sec. (a minute early). Notwithstanding the previous announcement that the newly realigned junction at Stafford would be taken at 60 m.p.h., speed was somewhat surprisingly reduced to 33 m.p.h., so that the time to Stafford, 133·6 miles, was 125 min. 9 sec.; Whitmore, 147·6 miles, was cleared in 139 min. 58 sec., and after a maximum of 76½ m.p.h. on Madeley bank, and a signal slowing beyond Basford Wood, Crewe, 158·1 miles, was passed at 25 m.p.h. in 151 min. from Euston, dead on time.

There were no special features about the running between Crewe and Preston; the usual slowings were made over Weaver junction (77½ to 53 m.p.h.) and Winwick junction (62 m.p.h.), and, again somewhat unexpectedly in view of the recent realignment, to 55 m.p.h. over Euxton junction, as well as a slack over the subsidence at Boar's Head. Warrington, 182·1 miles, was passed in 174 min. 10 sec., and Preston, at 22 m.p.h., 209·0 miles, in 204 min. 39 sec. Along the gradual rise from Brock to Galgate speed was maintained at 66 to 69 m.p.h., Lancaster, 230·0 miles, being cleared in 226 min. 13 sec., and Carnforth, 236·3 miles, in 231 min. 38 sec. On the long climb to Shap summit, the lowest speed on the final 2 miles at 1 in 106 to Grayrigg was 33½ m.p.h., and on the 4 miles at 1 in 75 to Shap summit, 27½ m.p.h., the 267·7 miles from Euston to this point having taken 271 min. 19 sec. Penrith, 281·2 miles, was passed in 284 min. 13 sec., and with a maximum of 79 m.p.h., Carlisle No. 13 box, 297·7 miles, in 298 min. 26 sec.; but a slight signal check made the total time 301 min. 4 sec. for the 299·1 miles from London. Net time was about 299 min.

For the final stage to Glasgow the engine was remanned at Carlisle, and Driver Watson, of Polmadie, took over. A fast start was made, Gretna, 8·6 miles, being passed in 10 min. 13 sec., and Lockerbie, 25·8 miles, in 26 min. 45 sec., at 70½ m.p.h., speed having been sustained at minima of 58½ m.p.h. and 55 m.p.h. up the two long 1 in 200 stretches. But after Lockerbie steam was shut off to ease the demand on the boiler in preparation for the ascent of Beattock bank, and speed drifted down to 47 m.p.h. On reopening the regulator, there was a rapid acceleration to 70½ m.p.h. beyond Wamphray, after which the 1 in 200 to Beattock was surmounted at a minimum of 60 m.p.h., and the 10 miles of Beattock bank, with steepness ranging from 1 in 69 to 88, at a lowest speed of 22 m.p.h. Beattock, 39·7 miles, was passed in 40 min. 32 sec., and Beattock summit, 49·7 miles, in 59 min. 36 sec.; down to Lamington the maximum speed was 77½ m.p.h., and Symington, 66·9 miles, was reached in 75 min. 31 sec.—a loss of 1½ min. on schedule.

With load reduced to 276 tons tare and 295 tons gross, the train left Symington 3 min. late, but despite the usual 40 m.p.h. slowing through Carstairs, and slight check at Carluke, and pitfall restrictions at Fallside, Uddingston, and Newton, this section was taken so fast that by Newton the train was on time; a maximum of 80 m.p.h. was reached at Braidwood, and Rutherglen junction, 31·4 miles, was passed in 31 min. 45 sec. Glasgow Central would thus have been reached 2 min. early, but for adverse signals which compelled a stop at Eglinton Street—34·4 miles from Symington in 34 min. 58 sec. start-to-stop—and Glasgow Central was reached 1½ min. after 5 p.m. Net time for the 35·4 miles from Symington was 37 min., or 5 min. less than schedule. This was thus a very successful inaugural run in maximum load conditions, and with the handicap of a strong north-east wind throughout.

Railway Share Market

A further batch of disappointing traffic figures and the easier tendency which has developed in the stock and share markets explains the lower prices made by Home railway securities this week. The continued decline in coal and merchandise receipts is an illustration of less active general trade conditions, and until there is improvement in the latter, it seems doubtful if the weekly takings of the railways can record a better trend. The market is now inclined to be less hopeful that dividends on L.M.S.R. and Great Western ordinary stocks and the payment on L.N.E.R. second preference stock will be kept at the same rates as for 1937. In the case of the Southern, however, the fact that for the current year to date the railway shows the best improvement in traffics suggests there are reasonable possibilities of the distribution on the deferred stock being maintained.

Southern deferred probably attracted chief attention among junior Home railway stocks this week, but, owing to the general trend, best prices were not held, although subsequently there was a firmer tendency and the stock changed hands up to 20¾. Southern preferred, which is still regarded by many market men as giving an unduly generous yield, has transferred between 76½ and 77½. Great Western ordinary, which was down to 54 at one time, later improved fractionally to 54½. L.N.E.R. second preference, which was out of favour and reacted to 20½ "middle" has been obtainable at a rather lower price than Southern deferred. L.N.E.R. first preference was dull at 57½. Granted, as is hoped, the speeding up of rearmament work provides a stimulus to the heavy industries during the next few months, the receipts of the railway should benefit satisfactorily. L.M.S.R. ordinary moved down to 21, and the junior preference stocks also made lower prices, although it would seem that, when markets become reasonably active, their apparently attractive yields will bring in buyers. Guaranteed and debenture stocks were well maintained, sentiment being assisted by the improvement in British Government securities.

Argentine railway stocks were inactive and have been affected by doubts whether traffic receipts will be of a more favourable character between now and the close of the financial periods of the railways at the end of next month. Ordinary stocks were lower and neglected, but some attention was given to Central Argentine 6 per cent. preference, while the debentures of the leading companies had a fairly steady appearance. In other directions San Paulo reacted and Leopoldina debentures lost their improved tendency. Antofagasta moved against holders, while Nitrate Railways bearer shares, although more active, have been lowered in price, pending publication of the annual report. Canadian Pacific and American railway stocks were a better market than earlier in the week, but Canadian Pacific preference has declined to 32.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1937-38	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1937	No. of Weeks	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1937	Prices: Lowest 1937	Prices: May 4, 1938	Yield % (See Note)
South & Central America	Antofagasta (Chili) & Bolivia	834	1.5.38	£ 19,670	– £ 1,810	18	£ 298,090	£ 309,960	– £ 11,870	Ord. Stk.	29	10¼	10½	Nil
	Argentine North Eastern	753	30.4.38	8,027	– 1,638	44	395,583	381,766	+ 13,817	,,	19¼	6	3	Nil
	Argentine Transandine	—	—	—	—	—	—	—	—	A. Deb.	93½	60	75	5
	Bolivar	174	Mar., 1938	4,800	– 1,300	13	11,900	17,200	– 5,300	6 p.c. Deb.	9½	5	8½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	17	9	5½	91/16
	Buenos Ayres & Pacific	2,806	30.4.38	92,308	– 28,288	44	3,891,196	4,152,586	– 261,390	Ord. Stk.	17⅛	5½	5½	Nil
	Buenos Ayres Central	190	16.4.38	$71,700	– $64,600	42	$4,869,100	$5,914,500	– $1,045,400	Mt. Deb.	41½	18	11½	Nil
	Buenos Ayres Gt. Southern	5,084	30.4.38	127,916	– 10,235	44	6,616,128	6,644,683	– 28,555	Ord. Stk.	33¾	13½	13	Nil
	Buenos Ayres Western	1,930	30.4.38	51,613	– 16,501	44	2,003,350	2,207,274	– 203,924	,,	31¾	11¼	9	Nil
	Central Argentine	3,700	30.4.38	103,703	– 46,390	44	5,328,654	6,774,459	– 1,445,805	,,	34¼	10¾	9½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	20½	4½	4	Nil
	Cent. Uruguay of M. Video	980	23.4.38	20,767	– 1,298	43	777,833	759,346	+ 18,487	Ord. Stk.	67/32	2	2½	Nil
	Cordoba Central	1,218	—	—	—	—	—	—	—	Ord. Inc.	6¼	1½	1½	Nil
	Costa Rica	188	Feb., 1938	18,767	+ 1,741	35	197,323	142,134	+ 55,189	Stk.	38	27	26½	7⅜16
	Dorada	70	Mar., 1938	14,400	– 2,500	13	46,800	48,000	– 1,200	1 Mt. Db.	107	106	106	5⅝
	Entre Rios	810	30.4.38	12,785	– 1,700	44	626,369	564,811	+ 61,558	Ord. Stk.	19⅞16	6	5	Nil
	Great Western of Brazil	1,092	30.4.38	5,700	– 1,100	18	136,300	143,000	– 6,700	Ord. Sh.	¾	1⅛	1¼	Nil
	International of Cl. Amer.	794	Feb., 1938	$477,297	– $42,015	9	$964,439	$1,033,251	– $68,812	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	2/-	1/-	1½	Nil
	La Guaira & Caracas	22¾	Apr., 1938	5,055	– 1,150	18	19,730	23,080	– 3,350	Stk.	8½	6	8½	Nil
	Leopoldina	1,918	30.4.38	17,017	– 4,409	18	324,903	387,262	– 62,359	Ord. Stk.	9¼	3	2½	Nil
	Mexican	483	30.4.38	$411,500	– $54,400	18	$5,410,400	$5,447,200	– $36,800	,,	1½	1¼	5/16	Nil
	Midland of Uruguay	319	Mar., 1938	10,313	+ 777	40	83,213	79,010	+ 7,203	,,	1⅞	1½	1½	Nil
	Nitrate	384	30.4.38	10,094	– 200	18	63,129	64,581	– 1,452	Ord. Sh.	3 1/16	2	2	Nil
	Paraguay Central	274	30.4.38	$3,040,000	– $780,000	44	$135,956,000	$125,163,000	$10,793,000	Pr. Li. Stk.	84	79¼	72½	8¼
	Peruvian Corporation	1,059	Apr., 1938	70,108	– 26,974	44	810,864	827,889	– 17,025	Pref.	14⅝	4½	3½	Nil
	Salvador	100	23.4.38	¢17,100	– ¢11,100	43	¢873,825	¢1,035,208	– ¢161,383	Pr. Li. Db.	23½	21½	22½	Nil
	San Paulo	153¼	24.4.38	28,708	– 384	17	479,408	508,751	– 29,343	Ord. Stk.	98½	56	42⅝	9½
	Taltal	160	Mar., 1938	1,285	– 2,595	39	31,955	31,810	+ 145	Ord. Sh.	1 7/16	1 1/16	⅝	13 9/16
	United of Havana	1,353	23.4.38	23,303	– 18,097	43	1,081,407	1,165,368	– 83,961	Ord. Stk.	55⅝	51/32	21½	Nil
	Uruguay Northern	73	Mar., 1938	979	+ 179	40	8,430	9,292	– 862	Deb. Stk.	10	2	2	Nil
Canada	Canadian National	23,781	21.4.38	621,879	– 153,729	16	10,161,548	11,339,989	– 1,178,441	—	—	—	—	—
	Canadian Northern	—	—	—	—	—	—	—	— 4 p.c.	Perp. Dbs.	77	62½	62½	6⅜
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	101⅞	94½	99½	4
	Canadian Pacific	17,186	30.4.38	631,400	– 134,000	18	8,115,800	8,707,400	– 591,600	Ord. Stk.	18	7¼	6	Nil
India†	Assam Bengal	1,329	10.4.38	34,973	+ 488	2	34,973	34,485	+ 488	Ord. Stk.	86	73½	79	31 5/16
	Barsi Light	202	10.4.38	6,457	+ 3,195	2	6,457	3,262	+ 3,195	Ord. Sh.	66½	46	58§	8⅝
	Bengal & North Western	2,107	20.4.38	87,825	– 9,815	3	177,534	187,071	– 9,537	Ord. Stk.	317	301	297½	6
	Bengal Dooars & Extension	161	20.4.38	3,685	+ 535	3	7,380	6,418	+ 962	,,	100	84	85½	7
	Bengal-Nagpur	3,268	20.4.38	195,900	– 18,212	3	394,425	417,917	– 23,492	,,	101	89	91½	4⅜
	Bombay, Baroda & Cl. India	3,072	20.4.38	287,775	– 3,825	3	566,250	570,900	– 4,650	,,	113	110½	110½	5 7/16
	Madras & Southern Mahratta	2,967	10.4.38	154,125	– 18,358	2	154,125	172,483	– 18,358	,,	110	105	105½	8 1/16
	Rohilkund & Kumaon	571	20.4.38	35,301	– 1,722	3	36,928	41,102	– 4,174	,,	314	302	303½	5 15/16
	South Indian	2,531½	31.3.38	126,658	– 10,408	52	4,189,261	4,032,159	+ 157,102	,,	103½	99½	102½	4⅝
Various	Beira-Umtali	204	Feb., 1938	87,194	+ 23,004	22	443,755	332,996	+ 110,759	—	—	—	—	—
	Egyptian Delta	620	10.4.38	5,800	– 131	2	5,800	5,931	– 131	Prf. Sh.	31/-	¾	⅝	Nil
	Kenya & Uganda	1,625	Mar., 1938	279,680	– 4,212	13	802,157	852,979	– 50,822	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb	48⅛	43½	45½	7 11/16
	Midland of W. Australia	277	Feb., 1938	15,062	+ 3,739	35	113,039	106,190	+ 6,849	Inc. Deb.	98	93½	93½	4¼
	Nigerian	1,900	19.3.38	37,874	– 35,977	51	2,742,256	2,564,196	+ 178,060	—	—	—	—	—
	Rhodesia	2,442	Feb., 1938	391,093	+ 56,372	22	2,101,534	1,699,975	+ 401,559	—	—	—	—	—
	South Africa	13,263	23.4.38	540,863	– 55,522	4	1,998,861	2,043,677	– 44,816	—	—	—	—	—
	Victoria	4,774	Jan., 1938	887,042	– 77,664	31	5,598,366	5,850,533	– 252,167	—	—	—	—	—

NOTE.—Yields are based on the approximate current prices and are within a fraction of 1/16

† Receipts are calculated @ 1s. 6d. to the rupee § ex dividend

The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the Sterling weekly receipts at the par rate of exchange has proved misleading, the amount being overestimated. The statements are based on the current rates of exchange and not on the par value